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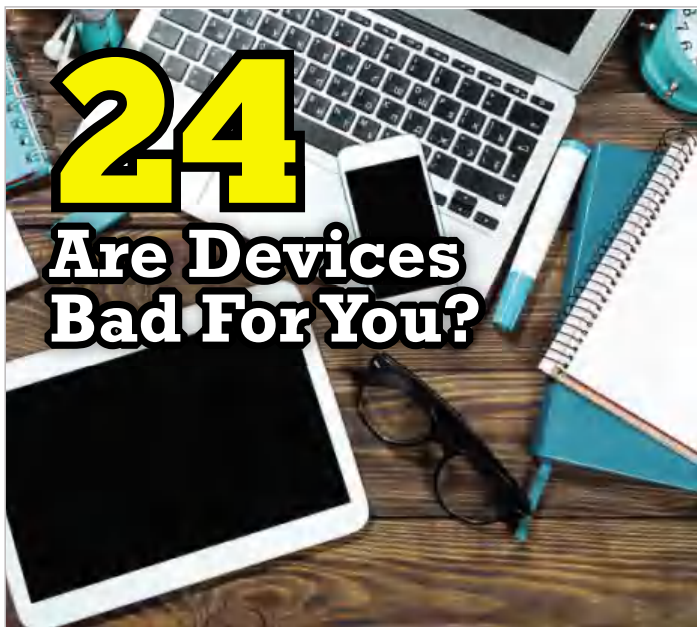


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50 Colour Laser Printers Tested

Not that long ago, the idea of having a colour laser printer in the home would have seemed ridiculous, because the prices were simply too high. That, however, has changed, and they're far more affordable these days. To help you choose one, we've look at a six different models to see what they offer

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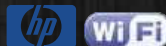
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Blocking The Ad blockers

David Crookes looks at how some companies are refusing to give away their content to those intent on blocking adverts

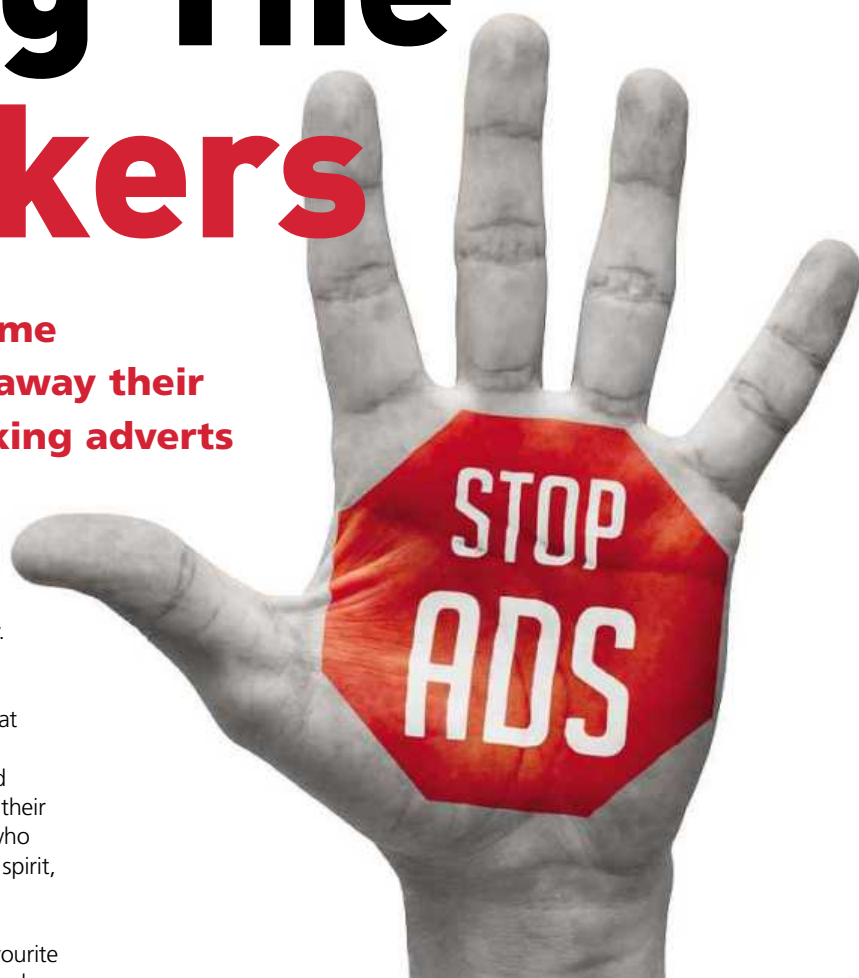
Each year there are certain signs that Christmas is on its way. There are the decorations in the shops that begin around October, the lights in the otherwise dark wintry streets and the festive, well-loved classic tunes mixed among the fair few that you wish would hibernate forever more. There are the jumpers emblazoned with woollen carrot-nosed snowmen, and red-faced boozers propping up bars with glasses of mulled wine, slapping their hands down amid the empty pint glasses as they tell everyone who passes that they really, really love them. But that's the Christmas spirit, isn't it? And most of us wouldn't have it any other way.

In recent years, though, another tradition has emerged: the coming of the annual, mawkish advert created by everyone's favourite department store, John Lewis. Seemingly aimed at boosting the sales of Kleenex rather than telescopes or presents for bears ("I have just started crying at the John Lewis advert. At 4pm in the afternoon with no alcohol inside me," said one Twitter user), its ads have become so integral to the run-up to Christmas, social media and newspapers have even begun to trail them. Indeed, they're perfect for sharing: a minute or so long, laden with a message and set to some pleasant, soothing music. Why, you would even think that we're actually starting to like adverts.

Yet this is where the needle flies off the record and where the telescope used by the old man on the moon turns out to be a joke that puts a black rim around his eye. For the evidence points well and truly against that sentiment. The truth is we don't like adverts at all. We hate them. And we do all we can the rest of the year to avoid and not embrace them.

What other conclusion could there be given the rising use of ad blocking software online and our desperate attempts to banish adverts from our day-to-day web surfing? There's no getting away from the fact that the ad blocking market is a booming industry as more and more software is launched in the hope of keeping us safe from the capitalist ills of the world.

It has led to a huge game of tug-of-war as those who need adverts to survive try new tactics to head off the numerous steps being taken by firms to satiate demand from people who don't want to see them. The efforts have intensified this year, and the latest salvo has been fired by Yahoo, which is adamant that it wants people to carry on watching, seeing and interacting with online adverts.



This became evident when American users tried to access their Yahoo email through a browser. They were told that they would have to switch off their ad blocker extensions, most notably Adblock Plus, before they could continue with the Mail service on Google Chrome or Firefox. At first, people thought it was surely some mistake.

"Uh oh! We are unable to display Yahoo Mail. Please disable ad blocker to continue using Yahoo Mail," the message said, arousing suspicion. But no, Yahoo confirmed it had put a block on the ad blocker in the USA – and it may seek to do the same elsewhere.

As expected, this move has annoyed many users, and a few visited the Adblock Plus forums to vent their frustration. It led to some headlines in the mainstream media, including the BBC, but Yahoo says it's a necessary step, and it's one that we may even see replicated more and more. As the Cult of Mac website writes, content blockers "threaten the wallets of every ad-supported website", and there are many online services across the world becoming very worried that ad blockers are destroying their revenues and viability.

The Fightback

Ad blockers have been around for quite some time (Adblock Plus, for instance, dates back to 2006), but their use has been controversial for pretty much the same period. In 2007, a web developer called Danny Carlton said the use of ad blockers was tantamount to theft, because blocking adverts rips away a vital revenue stream. Such a sentiment is often repeated.

The screenshot shows the top of the Bild website. At the top left is the 'Bild' logo. To its right are links for '1. MONAT 0,99 €', 'WETTER' (showing 3°C in Frankfurt), 'BILD.SHOP', 'COMMUNITY', and 'LOGIN'. Below these is a navigation bar with links: 'BILDplus', 'NEWS', 'POLITIK', 'GELD', 'UNTERHALTUNG', 'SPORT', 'BUNDESLIGA', 'LIFESTYLE', 'RATGEBER', 'REISE', 'AUTO', 'DIGITAL', 'SPIELE', 'REGIO', 'VIDEO', and a search icon. Below the navigation bar, a date and time stamp reads '24.11.2015 - 19:04 UHR' and a link 'HOME - WARUM SEHE ICH BILD.DE NICHT'. The main content area features a large white box with the text: 'Mit aktiviertem Adblocker können Sie BILD.de nicht mehr besuchen'. Below this text is a red button that says 'Jetzt Adblocker deaktivieren' and a link 'oder BILDsmart abonnieren'. Below the white box, the headline 'Warum sehe ich BILD.de nicht?' is displayed in large black font. Underneath the headline, there is a paragraph: 'Sie sehen diese Seite, weil Sie einen Adblocker eingeschaltet haben. Deaktivieren Sie diesen bitte für BILD.de, um unsere Artikel wieder lesen zu können.' followed by another paragraph: 'BILD bietet Ihnen Nachrichten rund um die Uhr. Unsere 500 Reporter berichten für Sie aus aller Welt. Um das zu ermöglichen, sind wir auch auf'.

▲ The German news website Bild will not allow people to view its content if there is an ad blocker present

The argument is that services are only provided for free because they can sell adverts on the back of them. As AdLover wrote on the Adblock Plus [ABP] forums following the decision by Yahoo: "It's funny seeing all these ABP users squirm when a large entity takes the fight to them. You guys realise like, you get to search on Yahoo and use their email service FREE of charge, right? That's kind of the point of the advertisements. Yahoo spends \$\$\$ on hosting, design, programmers, etc. They don't make you spend a penny. So there are advertisements."

But why is Yahoo only taking action now; why hasn't it done this kind of thing before? Well, a report by PageFair has shown there to be a stark rise in the number of people using ad blocking software. It found that blocking adverts online is costing publishers some \$22 billion globally every year, and it says the number of people using ad blocker now stands at a staggering 41% worldwide. That puts the present figure of users at 198 million, which is worrying for the scores of businesses and websites that rely on advertising revenue.

What's more, no country's online business is immune. Even here in the UK, the issue is just as acute. Figures show that ad blocking in Britain has risen by 82%, and there are now 12 million active users of such software. Just like elsewhere, people are tiring of seeing adverts and fed up of hearing that they can be tracked. So when word spreads on social media and as people become more tech savvy, they turn to ad blockers as a solution. And perhaps the reason they're doing so in even greater numbers than ever before is because we're seeing record highs in the level of ads that are being promoted.

Go back to 2010, for instance, and just 21 million people used blocking software on their desktop. But there were fewer adverts back then, so it was much less of an in-your-face problem for users. Times have changed, though. Digital display advertising has been growing fast, and the amount of money spent on online ads is now

“ Blocking adverts online is costing publishers some \$22 billion ”

worth £4 billion annually. Mobile spend has risen by 51% over the past year, and the trend looks set to continue, with the Internet Advertising Bureau UK (IAB UK) Digital Adspend report – conducted by PwC – saying “mobile is unquestionably the engine of digital growth”. “Recently a lot of the attention on digital advertising has been around the challenges, such as ad blocking,” admits Tim Elkington, chief strategy officer for IAB UK. And yet at no point does anyone think to temper things down a little.

An Apple A Day

And so we come to the next development: Apple's decision to support content blocking extensions in the mobile web browser Safari. For

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“ Google has launched an ad-free subscription service called YouTube Red ”

the first time, people running iOS 9 can install third-party software that can block adverts, scripts, videos, cookies, pop-ups and more. The fight against ad blocking software by a good many websites has arguably intensified because of this.

It has certainly led to an eruption in the number of ad blockers ranging from 1Blocker to Silentium. Apple doesn't make any such software itself, and none of those extensions available are allowed to affect Apple's own in-app ads. But for those tiring of the rising number of adverts, the add-on software for Safari makes it easy to block ads: it's usually a case of toggling a button by swiping it. Once done, adverts and a website's lifeblood are speedily drained away from view.

But who does this appeal to? According to reports, young, tech savvy male surfers who enjoy gaming websites are the most likely demographic to block adverts. And if they continue to do so, then it is likely that many other firms will follow Yahoo's lead and prevent people from accessing services unless they lift their ad blocks and allow the website they're visiting to make some money.

Some are already doing all they can to discourage ad blocking use, and there have been cases of companies taking ad blockers to court. The German media giant Axel Springer, which owns newspapers such as Bild and Die Welt, is a case in point, with one of its subsidiaries,

Acceptable Ads Manifesto

Adblock Plus is one of the most widely used ad blocking programs, and its maker has tried to be fair to websites that rely on adverts to generate revenue. It has signed up to the Acceptable Ads Manifesto, which has also been agreed to by the likes of Reddit, DuckDuckGo and PageFair.

The manifesto is straightforward enough, and it rallies against ad rollovers and those that blink for attention. It states that Acceptable Ads are not annoying, do not disrupt or distort the page content being read, are transparent about being an ad, effective without shouting and appropriate to the site that a user is on.

With acceptable ads allowed to filter through, users can support responsible websites. Companies have to apply to the developer of Adblock Plus, Eyeo, in order to get their site whitelisted. Once a form has been completed, a representative from Eyeo makes contact to determine the ad in question. The proposal is then listed in the Adblock Plus forum and debated. Once it has been accepted, the site is allowed through in a process that takes ten working days in total.

Some sites – including Google, Microsoft and Amazon – have paid Adblock Plus' owner to be whitelisted, although 90% of entities in the programme make no payments. The *Financial Times* said the fee was “30% of the additional ad revenues” that would have been made if the ads were unblocked. It is still possible to opt out of the acceptable ads program by unchecking “Allow non-intrusive advertising”.

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Set Up Ad Blocker On iOS

With iOS 9, it's possible to install a third-party ad blocker. There are a fair few out there such as 1Blocker, Crystal, Adamant, Silention and

Blockr, and you can also install more than one. This is great, because you may find that different ad blockers do different things. Here we look at how to install one.

Step 1

Visit the App Store on your iPad or iPhone and look for an ad blocker. Here we're going to install and open Silention Privacy And Ad Blocker for faster browsing.

Step 2

Open the Settings app on your iDevice and navigate to Safari. Look for the option that is labelled Content Blockers and tap on it to see the ad blocker that you have downloaded.

Step 3

Make sure that your ad blocker is enabled. As you can see, you can have more than one, and each can be turned on and off depending on your wishes.

Step 4

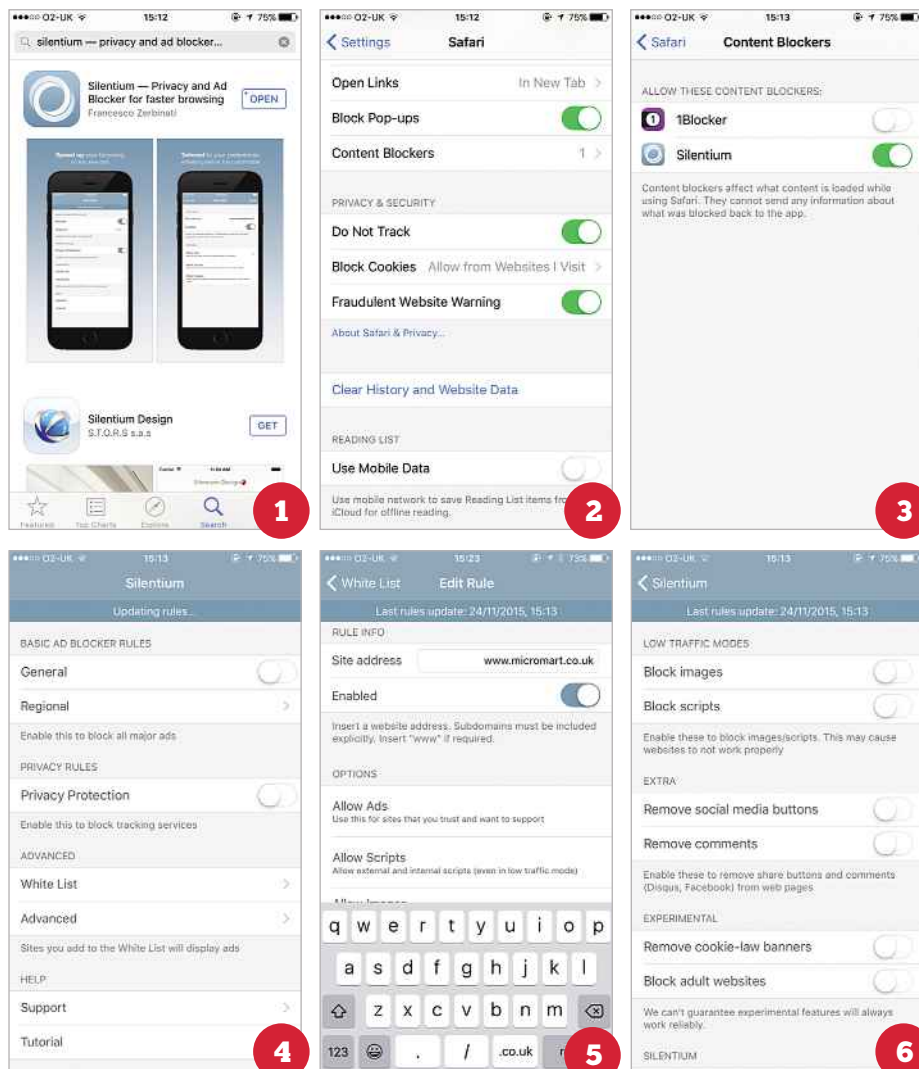
Open the ad blocker and take a look at the settings you're given. You can turn on general ad blocker rules, and you can also block tracking services.

Step 5

It is also possible to add websites to a White List. Go to the option and add the site you wish to allow. Then select Allow Ads, Allow Scripts, etc.

Step 6

There are also Advanced Rules, which will let you block all images and scripts and remove social media buttons or comments. You can tailor your web experience to suit.



WELTN24, taking action against Blockr. A final ruling over whether or not the software is legal or not will be made on 10th December. Previous cases – including involving Eyeo, which makes Adblock Plus – have ruled in favour of the developer, but Axel Springer appears determined to win its fight.

Already it forces those who visit Bild to pay a monthly fee if they insist on using an ad blocker to access content on the site, leading to vast numbers turning it off when visiting. Others may well follow suit: the New York Times is saying that it is “exploring a number of options”, with chief executive Mark Thompson adding, “The creation of quality news content is expensive, and digital advertising is an important way in which we and other high-quality news providers fund operations.”

New Fronts

The war against ad blocking software is not entirely head-on, though. There are firms that take a more creative approach or try to hammer home the point that, without adverts, services have to be paid for

somehow. Google has launched an ad-free subscription service called YouTube Red, which has original programming and a fee of \$9.99-a-month for Android users (\$12.99 for iOS). And there are companies that are looking to market their goods in a very different way: Criteo uses cookies to learn what you're looking at online and then matches you to a database of emails. It will send an email promoting whatever item you may have been viewing. In this way, it doesn't even matter if you're not seeing adverts within websites.

There's also a recognition of why people ad block, and it's not entirely because they don't want to see advertisements. People use the extensions to speed up internet access, save data and bandwidth and protect their privacy. This has led to firms adopting different tactics. The Washington Post and Slate are hoping to speed up access to their websites in the hope that those who block ads because they want a faster web will whitelist them in the future. They're also doing all they can to avoid their adverts being infected by malware. It has been an issue in the past, and it makes users jittery. Only by tackling this problem will people feel confident enough to lift their ad blocking.

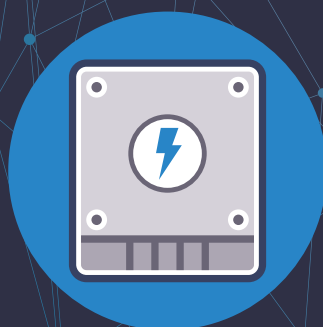


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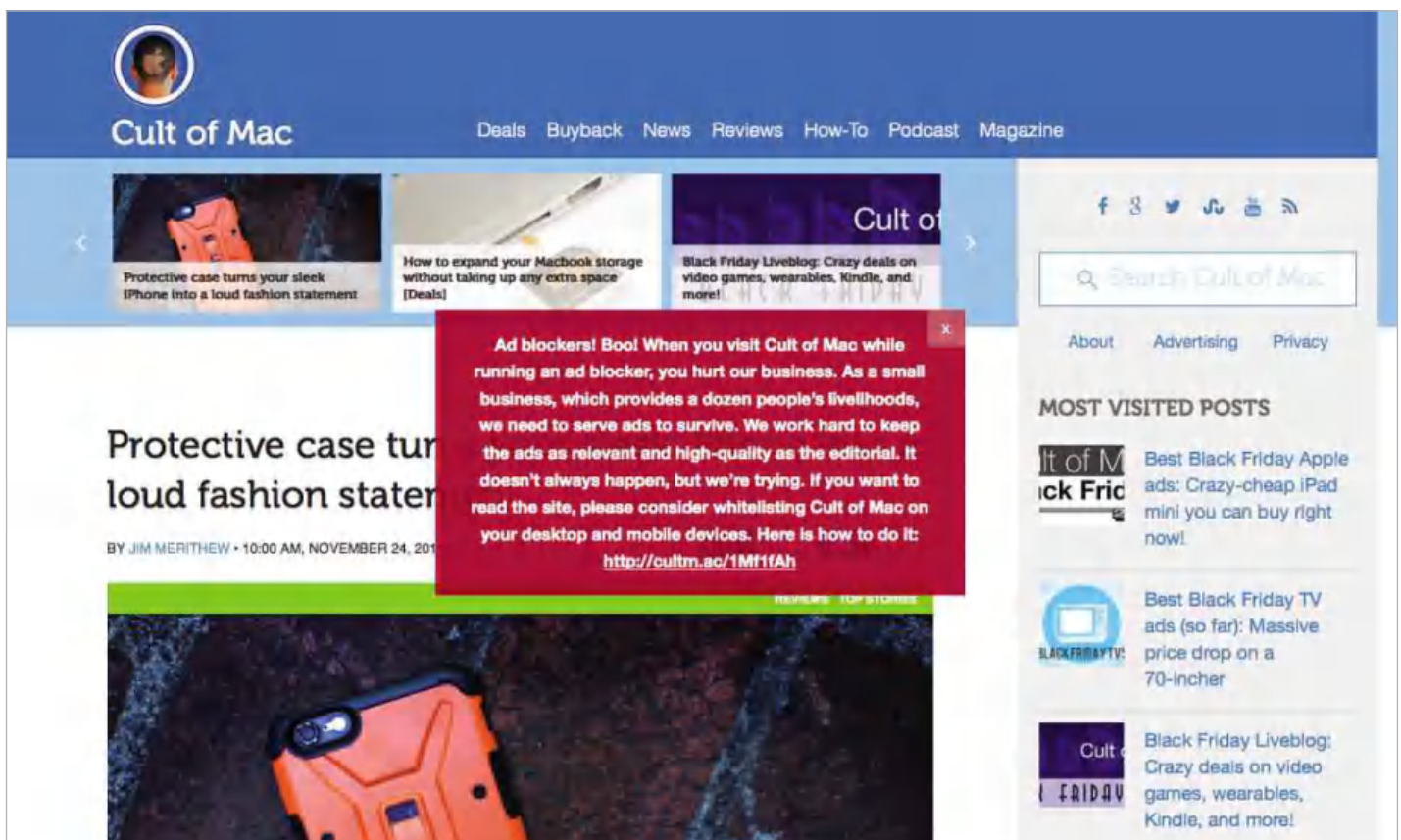
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▲ A growing number of websites are picking up on ad blockers and trying to persuade users to turn them off

The gently-gently approach is actually a tactic in itself, with some companies refusing to engage in a fight with readers. "If our consumers are demanding ad block, then we have no choice than to allow that for now," said Eyal Ebel, the head of programmatic at Gawker Media during the Digiday Programmatic Summit. "I don't see a situation where Gawker Media says to readers, 'You can't read our content any more because you have an ad blocker.'"

Guilt Trips

But companies such as Gawker Media are relying on visitors displaying a sense of fairness. They know that the need to strike a balance between allowing people to control what they see online and letting free-service providers have some way of paying for it troubles scores of web users. Not everyone sees adverts as a nuisance, as we noted earlier, and there is an acceptance that without them, the web would not be the same as the one we currently enjoy.

This dilemma has even caused the developers of some ad blocking software to have a crisis of conscience. Marco Arment had a couple of sleepless nights over his iOS ad blocker app, Peace, and decided that he would pull it just two days after putting it on sale within the App Store.

Even though he called Peace's success "the highlight of my professional career," he wrote a blog post in which he added, "achieving this much success with Peace just doesn't feel good, which I didn't anticipate but probably should have." He offered those who bought the software a refund and said, "ad blockers come with an important asterisk: while they do benefit a ton of people in major ways, they also hurt some, including many who don't deserve the hit."

In the event, Apple actually stepped in and said that it would automatically refund everyone who had bought Peace. This, Arment said, caused him to be happy – "or at least, as happy as someone can

be who just made a lot of money on a roller coaster of surprise, guilt and stress, then lost it all suddenly in a giant, unexpected reset that actually resolves things pretty well."

Even so, he still feels ad blockers are necessary. He suggests people try Purify, Ghostery or Crystal instead, but he remains concerned that ad blockers tend to treat all adverts in the same way (unless sites are whitelisted). The problem is that now ad blockers are

“ You can't read our content any more because you have an ad blocker ”

so widely available and the demand is there, they're not going to go away soon. The net is widening for ad blockers, and the indications are that they're going to be more and not less widely used.

According to the *Telegraph*, EE is considering allowing its 27 million customers use of a technology that will allow them to block adverts not only on the mobile web but within apps too. It would, says Olaf Swantee, allow wide numbers of customers to control the volume of advertising and turn vast numbers on to the issue. It would be the first time that ad blocking would be performed at the network level.

"For EE, this is not about ad blocking, but about starting an important debate around customer choice, controls and the level of ads customers receive," Swantee told the paper. He later added that he felt advertisers and publishers had a "dark underbelly" with fraud and over-intrusive tracking. "This could force it to face up to that."

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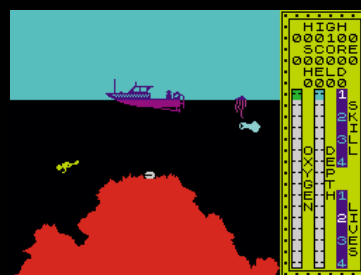
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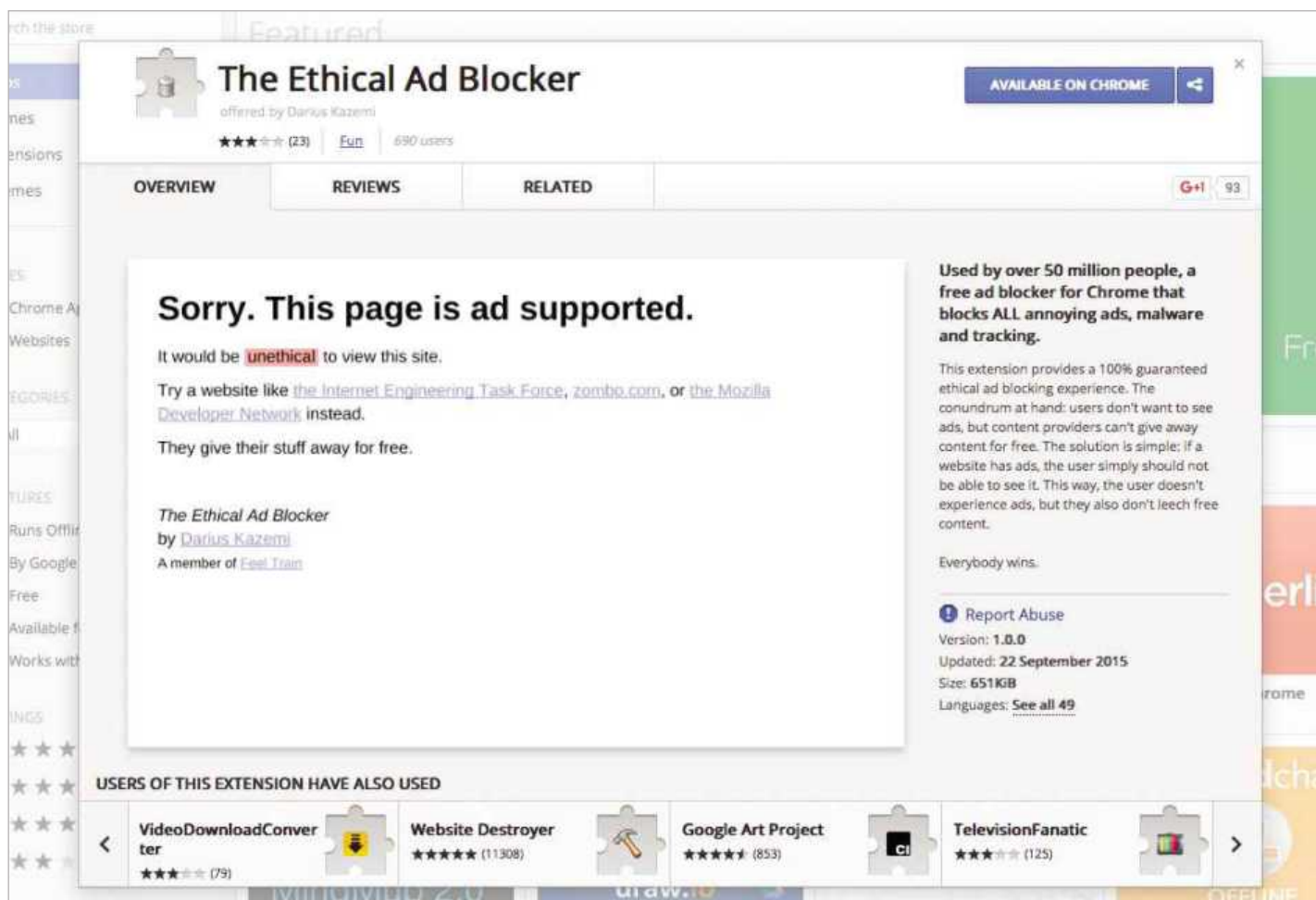


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Making Tracks

Indeed, if websites become even more open about what they're going to do with user data, and if they're clear that visiting their website will not lead to privacy concerns, they may have a better chance of persuading people to turn their content blockers off. As it stands, tracking is one of the more controversial tools used by advertising networks. When you visit a wedding caterer's website for instance, you may then be served up adverts about rings on other sites that you visit. In these cases, trackers are allowing advertising to be better targeted to suit your tastes, grabbing data in a split second and sharing it so that they can show you stuff that you're statistically more likely to click.

The furore over such practices is why blockers like to promote their ability to prevent websites from being intrusive. Mozilla released a new version of Firefox in November including tracking protection for Windows, Mac, Android and Linux. It blocks ads, analytics trackers and social share buttons that can record user behaviour without knowledge across sites, and it will surely be welcomed by Do Not Track, a website run by Stanford and Princeton researchers Jonathan Mayer and Arvind Narayanan. If you ever want to see how you can prevent tracking on various websites, that is certainly a site to visit.

What this shows, though, is that users do have lots of control over what they see, and they can decide whether or not they want to be tracked and whether or not they want to view adverts. At the same time, the companies providing services also have a choice. They can, like Bild, charge people as compensation for the loss of advertising revenue or they can do what Yahoo is doing and simply prevent people from using a service.

Quite where all of this will go in the future is anyone's guess, although we're likely to see a greater number of sites following

Try The Ethical Ad Blocker

If the idea of blocking adverts on websites causing internal unrest in your head, then you may want to check out the Ethical ad blocker by artist Darius Kazemi. It will prevent you from seeing any adverts on any page that you decide to visit online. The only problem is that if it detects there are adverts on a website, it won't display the ad-supported site either.

Instead, it will show you a message that reads, "Sorry. This page is ad supported. It would be unethical to view this site. Try a website like textfiles.com, the Mozilla Developer Network or zombo.com instead. They give their stuff away for free."

Kazemi writes, "The conundrum at hand: users don't want to see ads, but content providers can't give away content for free. The solution is simple: if a website has ads, the user simply should not be able to see it. This way, the user doesn't experience ads, but they also don't leech free content. Everybody wins!"

Yahoo's lead. Yet we're also going to see more people using ad blockers, although there is an alternatives. You can use anonymising web browsers like Tor, which do not block adverts if all you're worried about is privacy. And you could also see adverts for what they are and decide that, if you want to enjoy the services you use, they're a necessary evil. The problem comes with the tracking scripts embedded in adverts, so we may be at a stand-off for now. We're certain a happy resolution will be reached eventually, but one side is going to have to blink first. [mm](#)

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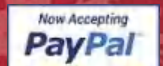


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Microsoft's Bridge to Nowhere

Mark Pickavance discusses Microsoft reverse course on allowing Android apps on Windows 10 Mobile

Microsoft has an entire enclosure of elephants to stable, having long exceeded the plausible limits to any room where they might hide in plain sight. And one of the biggest is the total failure of the computing public to engage with what were originally called 'Metro Apps' and have now migrated into being 'Universal Apps' since the advent of Windows 10.

Conceived as one of the pillars of the Surface/Mobile strategy, it became apparent even before Windows 8.1 arrived that people weren't embracing them and, as a result, neither did software developers.

As a result, it is generally considered that the Microsoft Store is a shadow of that offered by either Google or Apple, as it misses large numbers of the most popular apps and the quality of many it does have isn't high enough.

By way of holding out an olive branch to those that pointed this out, a series of initiatives were created that would enable the easier transition from iOS or Android for developers. These 'bridges' would span the app gap, and help both Windows mobile and Windows 10 to establish the universal app market.

At least that was officially the plan, until Microsoft changed it.

Bridges Over Troubled Waters

When it became apparent during Windows 8.x that the Microsoft Store wasn't the rip-roaring success that Microsoft had hoped, it formulated a plan to help populate it with the apps that people actually wanted to use.

This by-hook-or-by-crook approach was fermented around four bridging tools that would help developers move from their

current environment to one where their apps could run on Windows mobile or Windows 8.x (and Windows 10).

The project was subdivided like a garden fork into four prongs:

- Project Westminster – for porting web apps.
- Project Centennial – for porting Classic Win32 apps.
- Project Islandwood – for porting iOS apps.
- Project Astoria – for emulating Android apps.

When this was announced, the reaction in the developer community was that the information was contentious at best, because those developers who had made a commitment to Microsoft could see what little money they made vaporising when the Store flooded with alternative Android apps. And they also wondered why they'd taken the time and effort to learn the Microsoft API, when they could have used the Android one and ended up with the same conclusion.

What really upset many was that word 'emulation', because there is some skill needed in porting applications, however good the tools are to help you, but emulation can entirely take away the technical issues, allowing anyone to move existing apps over.

In fact, according to those who used Astoria, it would take a standard Android APK file, trap all its external communications and plumb them accordingly, and the app would run on the Android emulator. This isn't anything new to PC owners, because the Android SDK includes a basic emulator that allows Android apps to run on a PC, in a fashion.



▲ Agnieszka Girling, group program manager at Microsoft, telling developers how easy converting their Android APK files into Universal Apps will be with Project Astoria

What many pointed out at the time was this one utility entirely undermined the effort needed to code native Windows apps if the tool had already been coded for Android.

Microsoft's approach to calm these choppy developer waters was to not generally release Astoria to developers. Instead, it was only provided to a small selected invite-only group, who would discuss their experience on a closed forum.

After a reasonable amount of time passed, people quite reasonably wondered when Astoria would be seeing a wider release. And duly, in August, Microsoft released an early preview of Islandwood, its iOS porting tool, and promised that a final version would be included in the upcoming Visual Studio 2015 update, timed for a 'fall' release.

And that would also be the timescale for Astoria to step out of the shadows, so developers would get an opportunity to either be enraged or delighted with it. But between August and now,

something radically changed in Microsoft's thinking about this product, according to the small number who had access to the limited release.

Unsafe Bridge

The signals that not all was right with Astoria first started to surface in September, as people prepared themselves for the public beta.

The forum created for the project was where those involved usually asked questions, and at some point in that month those questions stopped being answered. Microsoft staff specifically wouldn't talk about the future of the project or timescales, and eventually they stopped replying to the most straightforward information requests.

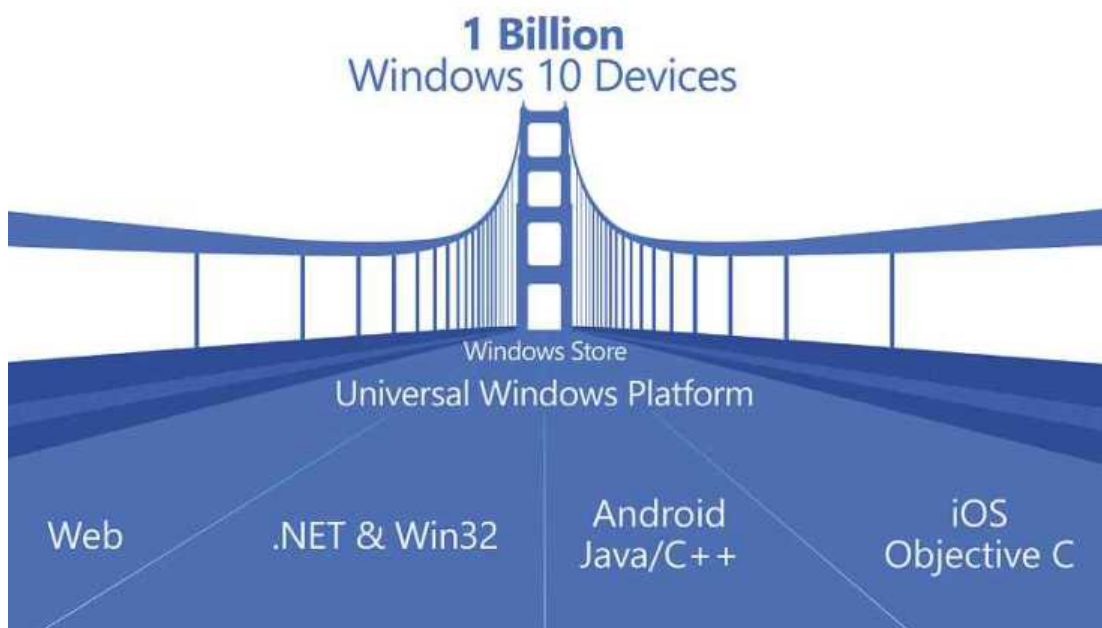
Unsurprisingly, this made many people nervous, because up to this point the knowledge exchange had been free flowing, and then without any explanation, abruptly it stopped.

Then in October, those brave enough to be taking Windows 10 Mobile Insider builds noticed that the Android subsystem required for Astoria to work was removed. It isn't unheard of that features are taken out, only to be put back later in the development cycle, but when the RTM build 10586 arrived and it wasn't in there, many quite reasonably assumed the worst.

This prompted some of the few journalists that Microsoft converses with to ask what was up, and those questions weren't answered even unofficially.

Eventually, having numerous people asking it what the situation was, Microsoft issued the following statement:

"We're committed to offering developers many options to bring their apps to the Windows Platform, including bridges available now for Web



▲ Four bridges that will take you to one billion Windows 10 devices. Okay, maybe three bridges or two, and maybe a lot less devices

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and iOS, and soon Win32. The Astoria bridge is not ready yet, but other tools offer great options for developers. For example, the iOS bridge enables developers to write a native Windows Universal app, which calls UWP (Universal Windows Platform) APIs directly from Objective-C, and to mix and match UWP and iOS concepts such as XAML and UIKit. Developers can write apps that run on all Windows 10 devices and take advantage of native Windows features easily. We're grateful to the feedback from the development community and look forward to supporting them as they develop apps for Windows 10."

This was clearly written by someone with the full intention of not actually answering the question of whether Project Astoria is dead, because it neither confirms that nor denies it.

That said, from those who used it up until now, it worked in a fashion, and it wasn't meant to be the finished article but a 'beta', so why is it now being classed as 'not ready yet'?

The view of many outside Microsoft is that this project has been shelved indefinitely, and Microsoft hasn't worked out in what exact order to put those words out so it doesn't look like yet another promise it failed to deliver on.

Or is there another problem?

Excuses, We've Heard Them All

Like most big companies, Microsoft has a small army of people who will try to interpret the worst possible actions as corporate brilliance on their part. And in covering this story, I've read many versions of why Astoria has been shut down, but none of them ring true.

It's been proposed that the angst of developers eventually sunk in, that there was a technical issue that Microsoft couldn't fix, and that the legal implications were insurmountable. None of these can handle much scrutiny.

The latest spin coming from undocumented sources inside the company is that the 80-man team on the project just cost too much, for a company that employs some 118,000 people worldwide.

That's a ridiculous notion given the cost implications of the Microsoft Store failing to get the apps it needs to be a real alternative to Google and Apple, because that will cost it billions ultimately. Microsoft probably spent 50 times as much on rebranding its music service to be called Groove, and lost more than that on the Surface Mini it had made then cancelled two days before launch.

“ Like most big companies, Microsoft has a small army of people who will try to interpret the worst possible actions as corporate brilliance on their part ”

I've also heard from one source that Microsoft got concerned when some developers trying to find the limits of what the tool could do took applications written by others and converted them. If it worked that well, surely that was the point of the exercise?

What none of these creative narratives do is explain how a company like this changes its mind but can't work out to convey that simple idea. Perhaps it could try using the media of modern dance or flash cards.

Final Thoughts

I'm not sure what to think about this, if I'm honest. How companies throw massive amounts of time, people and money into projects without actually thinking them through is the potent stuff of nightmares.

But equally, if you realise you're doing the wrong thing, then it's probably the best course of action to stop rather than to shout 'damn the torpedoes' and plough right on.

Where I have an issue with all of this is that having effectively nixed the Android part of this equation, and with no news on the iOS side of the coin to report either, were does this actually leave those important Universal App plans?

On the mobile side, Microsoft has released two new flagship phones that won't make the slightest impact on its 2% (or less) market share, and the Microsoft phone is as close to being a dead man walking as it's possible to get.

Once that is inevitably dead, and it might as well be, then who are these poorly considered full-screen apps actually for? Windows desktop owners patently don't want them, and it seems very unlikely to change their minds on that point. In this respect, Microsoft has created a complete ecosystem without any plausible purpose, without developers or customers, and with no overarching plan as to how it can get any of those things other than some almost evangelical belief that the customer will eventually see the world the way it does, given time.

By now, it should have delivered the means to package Win32 apps for the store, and that isn't here either. I'd call that a fail. How it can blindly not see the scope of how it's got that vision wrong up to this point is beyond me, but everyone else can see it very plainly indeed.

Perhaps it needs to ask someone outside Microsoft what it should do, because those inside the Redmond campus must be drinking something mind altering.

The Astoria project wouldn't have helped Microsoft attract developers to its Universal App realm, but it would have made the mobile store seem more like that offered by the successful teams.

With that now not happening, the store is exactly where it was when Microsoft cooked up this plan, but without any plan to get out of the hole it's in.

Perhaps if it stops digging, that might be a good start. [mm](#)

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Are Our Devices Bad For Our Health?

As various studies reveal potential links between mankind's ever growing collection of devices to issues of impaired vision, childhood depression, obesity and loss of sleep, Rob Leane looks into what damage our screens might be doing...

How many devices do you have? If you're reading this, presumably you at least have a couple. Personally, I have a laptop, a smartphone, a Kindle and an iPod. I have a smart TV too, if you count that as a device. There's rarely a point in the day – only mealtimes, some days – when I'm not interacting with one of these devices in one way or another.

You can imagine my fright, then, when I started reading about potential links between device usage and all sorts of health issues, from loss of sleep (one I do definitely suffer from, on occasion) to conditions far, far worse. Hearing that the technology that supplements my life could be harmful to my health was one of the scarier possibilities I've heard recently.

To try to get to the bottom of it – or at least to become better informed – I read up on all the theories in this field. This is what I found on my trawl around the internet...

Vision Problems

Beginning with one that we can all probably relate to, over-indulgence in staring at screens can cause eyesight problems. Computer Vision Syndrome (or Digital Eye Strain, as it's sometimes known) is a very real thing and is recognised by such high-profile organisations as the American Optometric Association (AOA).

It describes the condition as "a group of eye and vision-related problems that result from prolonged computer, tablet, e-reader and cell phone use."

"Many individuals experience eye discomfort and vision problems when viewing digital screens for extended periods," its website notes. "The level of discomfort appears to increase with the amount of digital screen use."

The AOA lists the most common symptoms of Computer Vision Syndrome as eyestrain, headaches, blurred vision and dry eyes. It

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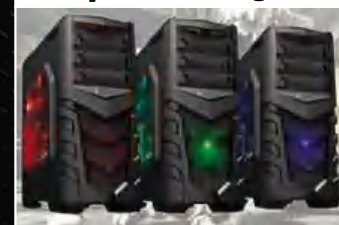
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also mentions neck and shoulder pain as a common complaint from the same patients. Sound familiar?

It certainly does to this writer. The specific reasons for these symptoms could apparently include poor lightning, the glare from your screen, improper viewing distances, uncorrected vision problems and poor seating posture.

So how can we avoid these symptoms? Well, we need to avoid the causes of them. If you're meant to be wearing glasses for computer work, then try not to forget. Even if you don't think you need them all the time, it might help reduce soreness and strain.

The way you view your computer is also important. The NHS tells us that "your monitor (screen) should stand at eye level or just below it." The AOA adds that your screen should ideally be no more than 28 inches away from your eyes. Any closer than 20 is considered too close, though. Looking from documents on your table to a high up screen can also cause extra strain, so we should try to keep everything we need to look at on a similar level.

The AOA also recommends a few simple routines to help keep your eyes from hurting. After two hours of continuous computer use, it advises 15 minutes of rest time. Every 20 minutes, it could also help to move your focus away from the computer for just 20 seconds. Focus on something in the distance instead, give your peepers a break. Blinking frequently is also recommended.

Lighting issues also play a part. Try to minimise the glare on your screen. This can be achieved by repositioning yourself in the office or simply by turning your computer screen away from glare-causing sources of light.

Trouble Sleeping

Although some of us love nothing more than digging our teeth into a good ebook (on a Kindle or similar device) before nodding off, experts have also found links between device usage and trouble sleeping. Dr Mari Hysing, of the Norwegian research centre Uni Research Health, led a study into this area, specifically focusing on how devices affect teenagers' sleep patterns.

Gathering data from 10,000 16- to 19-year-olds (before publishing her findings through the online journal BMJ Open), she found that teens who spent more than four hours a day looking at screens had a 49% greater risk of taking a full hour to fall asleep.



Additionally, these more device-happy youngsters were 3.5 times more likely to sleep for under five hours a night. The reasons for this seem to point towards the nervous system and the body clock. Somehow, over-use of devices is seemingly correlating with bad sleep.

Resultantly, the study concluded with a suggestion that health authorities should update their guidance on matters of daily screen usage for young people.

Hysing's personal advice – shared online by the *Independent* – is that "parents should be aware of the use of all types of electronic devices in the bedroom." She urges parents to, "At a minimum, keep the night-time screen-free in the bedroom, and ideally be logged off an hour or so before they go to sleep."

The USA's National Sleep Foundation (NSF) had similar findings, with Dr Charles Czeisler reporting that "artificial light exposure between dusk and the time we go to bed at night suppresses release of the sleep-promoting hormone melatonin, enhances alertness and shifts circadian rhythms to a later hour – making it more difficult to fall asleep."

My basic interpretation of that scientific speak is this: by reading an ebook, playing a computer game or mucking around on your laptop, you're encouraging your brain to think, not to relax. Therefore, it'll take you longer to get to sleep if you keep using these devices later into the night. Interestingly, the NSF did also note that the passivity of your screen-based activity of choice (watching a TV show, rather than playing a game, for example) could alter the results.

Regardless, the NSF's study concluded that, more often than not, "light-emitting screens are in heavy use within the pivotal hour before sleep. Invasion of such alerting technologies into the bedroom may contribute to the high proportion of respondents who reported that they routinely get less sleep than they need."

The NSF's advice to counter this is simple – plan your bedtime where possible, and get in a screen-free hour before that. If you find it difficult to switch off, keep a pen and paper by the bed to jot down any thoughts that you need to act on tomorrow, rather than dwelling on them now.

Pretty much ruining my freelance lifestyle in the process, the NSF also recommended avoiding naps of longer than 45 minutes after 3pm – damn!

Obesity

Overuse of screens has also been linked to childhood obesity by Dr Leonard Epstein and his colleagues from both the University of New York and the Stanford Prevention Research Centre in California. In 2008, news outlets around the world shared the group's findings.

Supported by the US National Institute of Diabetes and Digestive Diseases, Epstein et al had studied 70 children and the way their use of technology correlated to their fitness and health. They achieved this by splitting the children into two groups – some with limited screen time, the rest with unlimited access to TV and computer games. The study ran for two full years.

The children with strict controls on their use of devices (they were allocated a weekly budget of

Sleep Tight

If you're guilty of using your smartphone in bed, then you'll possibly have experienced the sleep problems that we've discussed here. As we said, the cause is the blue light emitted by the screens of our phones, tablets and monitors, which inhibits the production of melatonin.

Of course, the best thing to do is simply to not use any gadgets at bedtime, but that's not always an option, or it might be something you're not prepared to do.

Thankfully, there are solutions, including software that attempts to reduce this blue light, like F.lux for iOS or Twilight for Android.

And there are also physical products, such as the WaveWall Sleep. This is a screen protector with a difference. Available for iPhones, Samsung Galaxy S phones and the HTC One range, it not only protects your screen from scratches, it also filters out blue light. That should mean fewer sleepless nights, no matter when you decide to use your device.

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'screen time', which was gradually reduced over the course of the study) made drastic changes to their routines, reducing their screen time by 17.5 hours per week, on average. In contrast, the group with unlimited screen time only reduced their habits by an average of 5.2 hours per week.

Tellingly, those who had their screen time limited became the healthier children. Their daily energy intake was significantly less (around 200 kilocalories, on average), and their BMI score was also better, by around 0.1 units.

The researchers concluded that "reducing television viewing and computer use may have an important role in preventing obesity and in lowering BMI in young children, and these changes may be related more to changes in energy intake than to changes in physical activity."

Essentially, less screen time equals less food and drink consumption, which equals less weight gain.

However, this study did have its limitations. For one, the children studied were all taken from the 75th percentile of BMI for their age. The results would have differed in children who were less overweight to begin with. Also, the study couldn't account for screen time outside of the home. There was nothing to stop children playing games or watching movies at their friend's houses. Also, exact food diaries were not kept, which could have provided important insights.

"Screen time appears to be an important modifiable cause of childhood obesity," wrote the NHS in its analysis of this study, "but exactly how it exerts an effect remains to be established."

As this study has shown that less TV does not necessarily increase physical activity, parents who want to get their children doing more healthy physical activities may have more success presenting it as a fun first choice, rather than just as an alternative to watching TV."

There is some correlation between obesity and screen time, then. Of course, though, it's possible to spend a lot of time online and to lead a healthy lifestyle.

Depression

In 2013 – much more recently than that obesity study – another set of scientists, from Public Health England (PHE), decided to investigate the relationships between young people their devices. This time, though, they were searching for correlation between screen time and childhood depression.

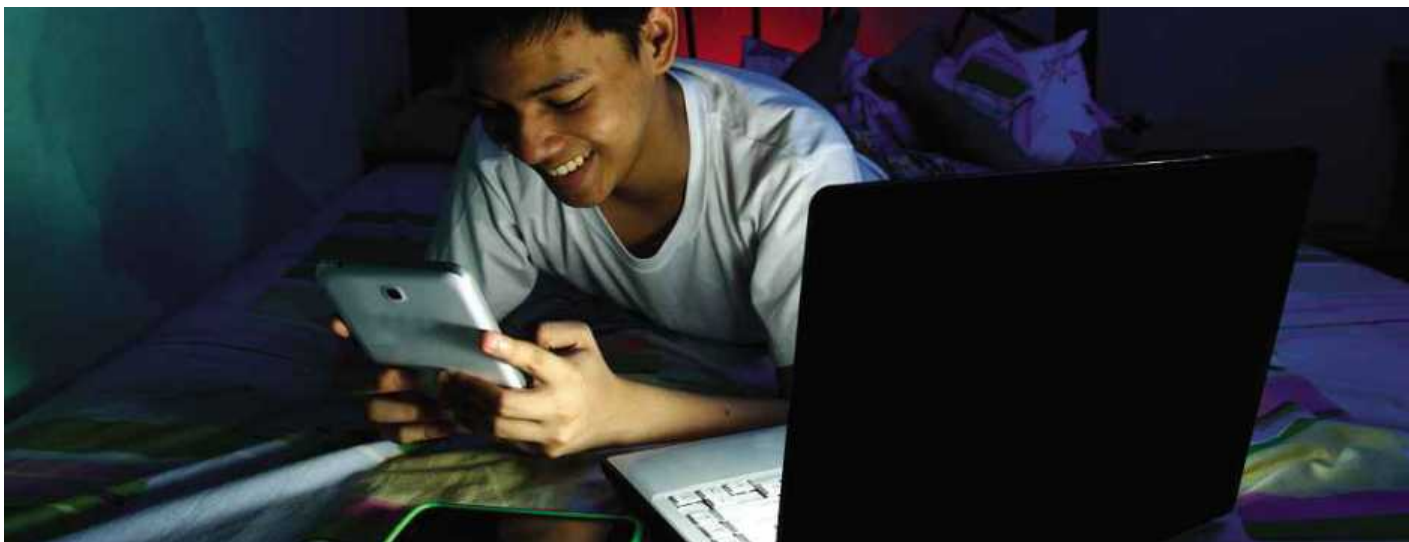
Sadly, after studying research conducted by the Children's Society among 42,000 eight to 15-year-olds, they did find a correlation, which they published in a report titled 'How healthy behaviour supports children's wellbeing.' Again, the press shared this report widely. On the *Independent* website, I found some particularly worrying excerpts from PHE's report.

Professor Kevin Fenton, Director of Health and Wellbeing at PHE, found that "the greater the time spent in front of the screen, the greater the negative impact on both behavioural and emotional issues relating to the child's development."

"Higher levels of TV viewing are having a negative effect on children's well-being, including lower self-worth, lower self-esteem and lower levels of self-reported happiness," read the report.

PHE also noticed a concept that they named a 'dose-effect' regarding young people's screen time, which means that "each additional hour [or 'dose'] of viewing increases children's likelihood of experiencing socio-emotional problems and lower self-esteem."

Lily Caprani – PHE's Director of Policy – told the *Independent* that



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38%

WHILE USING THE BATHROOM



25%

WHILE DRIVING



social interaction via a computer or mobile phone did not deliver the same benefits in emotional wellbeing as real human interaction. "It's nowhere near," she said. "You have to be physically present with your friends to get the benefits of social interaction. Texting, Facebooking or even chatting on the phone has a remoteness that means you lose a lot of the positive impact."

Increased exposure to TV ("consistently associated with reduced feelings of social acceptance, and increased feelings of loneliness, conduct problems and aggression") and videogames ("children who spend more time on computers and playing video games tend to experience higher levels of emotional distress, anxiety and depression") in place of real social interaction is clearly something to worry about among young people, then. It's always worth remembering there's no replacement for a healthy physical and social lifestyle.

Other studies have looked at 'screen addiction' and its physical effect on the brain. Different studies – compiled effectively in Victoria L Dunckley MD's 'Psychology Today' blog entitled 'Gray Matters: Too Much Screen Time Damages The Brain' – have found cases of various worrying brain symptoms in the brains of screen addicts.

These include grey matter atrophy (shrinking of the area where processing occurs), impaired cognitive functioning (less efficient information processing), and impaired dopamine function (to do with addiction and reward processing). For more information, see Dunckley's blog. The long and short of it is this, though: our screens can be addictive, and in the worst cases of this, human brains can really suffer.

Lessons Learnt

By this stage, you've probably got the gist" spending all your time on your devices isn't considered to be good for you by any stretch.

Using your devices before heading to bed can interrupt healthy sleeping patterns. Sitting at your computer all day without taking

“ Other studies have looked at ‘screen addiction’ and its physical effect on the brain ”

breaks can cause problems with eyesight. In young people, there's been correlation found between overuse of screens and both obesity and depression. For screen addicts, the brain can physically suffer too.

Writing this has certainly been an eye-opening experience for me, and I'll definitely be trying to learn some lessons from my research here. It's left me thinking: what's the biggest takeaway from all of this?

Well, essentially, it seems like the most important lesson here this: it's vital to distance ourselves – and any young people we might be responsible for – from our devices, at least for a few chunks of the day. In children, over four hours daily seems to be considered overdoing it, from quite a few scientific sources.

Obviously, in adulthood, restricting computer usage to less than four hours is pretty much impossible. If you're reading this, you probably work at a computer, and most of you may not have a say in the hours you spend at your desk.

However, you can hopefully add in a few breaks, make sure you're working in the best environment possible and save some time every evening to be device-free. Exercising, healthy eating and some in-person social interaction are all good habits to keep up too.

All in all, then, it may be tempting to live your life exclusively through your consoles, tablets, computers and smart devices, but it's important to do other stuff too. You probably all knew that already, but now we have some specific evidence to back it up. Right, I'm off for a walk... mm

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Why Facebook's 'Real Name' Policy Matters

Sarah Dobbs looks at Facebook's recent change of heart

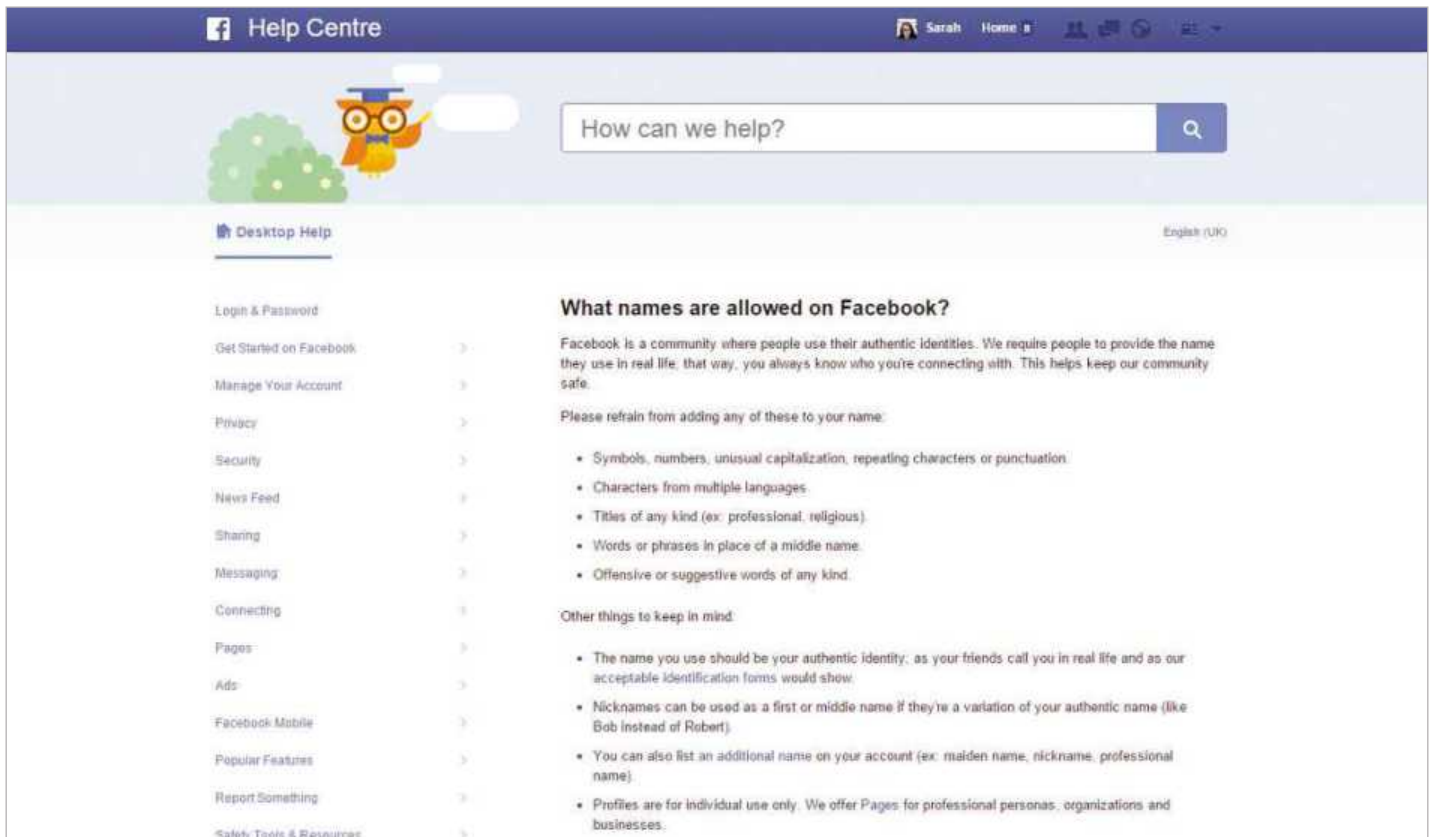
Remember the early days of the internet, when you didn't give your real name to anyone unless you trusted them? Now, you probably use your real name in most online contexts. Partly that's because the online and offline worlds are a lot more enmeshed now than they were in the 90s; email's now a part of everyday life, and people tend to use their real names there. But partly, too, it's because of Facebook.

Social networks before Facebook tended to encourage their users to create screennames, handles that were generally based on nicknames or interests rather than legal names. But then Facebook came along.

You know Facebook's background by now, but let's do a very quick recap. Created by Mark Zuckerberg in 2004, it was meant to be an online version of the paper 'facebook' that were available at some universities, to help students get to know one another. It began at Harvard, soon expanded to encompass other universities,

and eventually opened up to the general public in 2006. What made it different from most other online discussions forums and networks was that it aimed to connect people to other people they already knew (or were at least likely to run into in real life). In that context, it made sense to use your real name and real photo.

It's been almost a decade since then, and Facebook has become a fixture. Pretty much everyone uses it – it has 1.55 billion monthly active users, which means that almost all of your friends and family are likely to be on there, and if you're not, it means missing out on all kinds of news and invitations. But Facebook's insistence on people using their real names has meant some people have been pushed out. After months of complaints, protests, and organised campaigns, Facebook has finally made a change to the way it polices 'real' names on its site, which is, broadly, good news. But is it enough? And why does it matter, anyway?



▲ Facebook wants everyone to use an 'authentic' name, whatever that means

Privacy And Safety

Facebook's position on names, basically, is that it shouldn't be a choice – everyone should use their real names on their profiles. In the Help section, it says: "Facebook is a community where people use their authentic identities. We require people to provide the name they use the name they use in real life; that way, you always know who you're connecting with. This helps keep our community safe."

Sounds reasonable, doesn't it? After all, troll-like behaviour online is often attributed to anonymity; it seems to stand to reason that if you don't have to stand behind your words, you might say things you'd never actually say if someone could later confront you about it in another context (at your job, for example). Facebook's former Marketing Director, Randi Zuckerberg, has talked about the real name policy as a way to prevent cyberbullying, saying, "I think anonymity on the Internet has got to go away. People behave a lot better when they have their real names down."

But there are problems with that reasoning. For one thing, the evidence doesn't back up Facebook's argument – in Korea, when the law dictated that commenters on big websites had to use their real name, it made virtually no difference to the amount of nastiness that got posted, while some research by Livefyre showed many people just decide not to bother commenting at all if they're forced to use their real names.

Then there's the question of who, exactly, these kinds of policies make Facebook safer for. Certainly not victims of domestic abuse, or anyone who's ever been stalked, who might be trying to keep their profile hidden from people who want to do them harm. Ditto trans people, whose "real" names, or at least their legal names, might not be the ones they actually use. People who live in countries without any real provision for freedom of speech – especially journalists – might also feel safer if they can express their views without attaching their real names to them.

That's Not A Name

There are other kinds of people who might want to use false names on Facebook, too – performers, for example, whether they're actors, musicians, or drag queens, might want to use stage names rather than the names their schoolfriends knew them by. Another category of people affected by Facebook's policies, weren't using fake names at all – they just fell foul of the fact that Facebook's systems aren't set up to recognise certain name formats.

Native Americans, for example, have repeatedly been targeted by Facebook and told to use their real names. High profile examples of this include Robin Kills The Enemy, Lance Brown Eyes, and Dana Lone Hill, all of whom had to fight to get the firm to reinstate their accounts.


Google's Take On Real Names

In most ways, Google+ can fairly be considered inferior to Facebook, but on the issue of real names it was ahead of the game. Last July, in a short blog post, it announced that "there are no more restrictions on what name you can use." YouTubers can use their channel names instead of the name on their birth certificate – handy, since Google+ identities are linked to YouTube comments – and users can even create profiles with only a first name and no surname if they want to.

It's sort of weird that it's taken so much effort to get companies to let us do what we always used to (i.e. make up new aliases online). While the idea of encouraging everyone to own their words and stand by their actions online is nice enough, it's actually nicer that, eventually, these corporations are bothering to listen to their users.

▼ How do I report a fake account?

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3. Follow the on-screen instructions to file a report

We don't allow accounts that:

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- Use your photos
- List a fake name
- Don't represent a real person

▲ *The reporting system is meant to prevent catfishing, but can be abused by people just trying to antagonise someone they don't like*

Facebook doesn't like users to have too many letters in their name, either. This has caused problems for Hawaiians like Chase Nahooikakeolamauloakalani Silva, as well as for people from the Chamoru culture, who routinely use their middle names as well as their first and last names. It seems like such a minor thing, but Facebook's set up was just too rigid to make allowances for people who were, perfectly reasonably, just trying to do as they were told and use their real names. I don't want to labour the point too hard, but it just seems a bit silly. Facebook also rejected people trying to use first initials instead of first names, even if, like M. Night Shyamalan or J. Michael Straczynski, those are the real names they're really known by.

Enforcement

The thing that made this policy so much more aggravating than any other slightly daft clause in some overlong terms and conditions document that no-one actually reads was how strict Facebook was prepared to be in enforcing it. Last September, Facebook started a crackdown, and anyone using a name that didn't look, to Facebook, like their real name got a message telling them to either change it to something more acceptable, provide documentation to prove their name was legit – or face losing access to their account.

Anecdotally, several of my friends deleted their accounts, saying they refused to be bullied into making their names public, or using a name that they actually hadn't used in real life for years. Some more extreme cases hit the headlines, like the guy who'd legally changed his name to Something Long And Complicated and wanted to use Facebook under that name, but couldn't get staff to accept it, even after scanning in his passport for them.

Some people found themselves feeling victimised because Facebook allows users to 'flag' profiles if they think they're not being honest about their names. In theory, this feature is meant to highlight fake profiles; back in 2012, Facebook admitted that around 83 million accounts on its network were fakes, which didn't look particularly good for a site that wants to claim it's all about openness and honesty. Mark Zuckerberg has even said that he thinks the real name policy makes the site safer for some of the people complaining about it. Speaking to *Buzzfeed*, he said, "We know that people are much less likely to act abusively towards other members of our community when they're using their real names. There are plenty of cases – for example, a woman leaving an abusive relationship and trying to avoid her violent ex-husband – where preventing the ex-husband from creating profiles with fake names and harassing her is important. As long as he's using his real name, she can easily block him."

Facebook Vs. Germany

You'd think that Facebook could do whatever it liked with its own site – after all, the argument goes, if you don't like it, you don't have to use it – but turns out that's not totally true. In Germany, it's been forbidden from enforcing its real name policy. The Hamburg data protection authority ruled that stopping people from using pseudonyms if they wanted to was a violation of citizens' rights, and an infringement of their privacy.

A case had been brought against the social network by a woman complaining that she wanted to use a pseudonym on the site so people wouldn't pester her with work-related matters. And in the ruling, Johannes Caspar, commissioner for data protection and freedom of information, said "As in many other complaints against Facebook, this case demonstrates that the network wants to enforce the so-called real names policy with no regard to national legislation."

Specifically, when Facebook changed the woman's pseudonym on her profile to her real name, he said it had "blatantly violated the right to informational self-determination," which was an infringement of the Data Protection Act.

In response, a Facebook spokesperson said they were "disappointed", and insisted that the policy did comply with European data protection law, but it seems even giant tech companies can't always get their way. Take that, Facebook.

Not many people seem to have agreed with him, though. Back in October, some users set up The Nameless Coalition, hoping to force Facebook to change its policy. And after some more protests and many more news articles, it seems to have worked.

Making A Change

As of this month, Facebook has announced plans to relax its stringent rules. The policy isn't changing, exactly – it's just that someone at Facebook seems to have realised how useless the previous way of dealing with the issue was, and tried to bring in a bit of common sense. So, users are still asked to use "authentic" names, but that doesn't necessarily mean their legal name. Rather than demanding copies of users' birth certificates, passports or library cards when a query is raised, Facebook has tweaked the process so that anyone flagged will be able to explain themselves, and their individual circumstances be taken into accounts when decisions are made.

As an additional step in trying to prevent abuse of the flagging system, Facebook will also ask users to provide some context as to why they think someone is using a fake name – which should, hopefully, make it less likely that people will lose access to their Facebook accounts just because of someone else's petty spite. Essentially, these changes are adding some flexibility and logic to both parts of a process that was previously almost completely automated. It's an acknowledgement that things aren't always straightforward when it comes to names, identity – and privacy.

Privacy has been a big stumbling block for Facebook for almost as long as it's existed. While we are now generally happier sharing more information about ourselves online, big companies like Facebook do need to remember that everyone's circumstances are different. This change is definitely a welcome one, though it doesn't immediately solve every issue anyone's ever had with the policy, it seems like a step in the right direction. Let's hope it's implemented with as much sensitivity (and common sense!) as it needs. [mm](#)



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Remembering... Sega Mega Drive

David Hayward rekindles his youth and looks at one of our favourite consoles

I was surprised to find out the other day that among the various tablets, phones, MP4 players and whatnots, one of the most successful Christmas gifts of this year so far is a re-release of the Sega Mega Drive.

Sold by Argos and other such shops, this new version of an old favourite is more of an ARM-powered emulator with the ability to take the original hardware – in terms of the controllers and the cartridges – but it lacks some of the support for the special FX chips that appeared on the special cartridges. However, for the sake of £40 or thereabouts, it's a great little console for modern TVs and living rooms.

Saying that, those of us who can fondly recall the original will no doubt frown at this strange, new, plastic box. Gone are the sleek lines of the Mega Drive we all knew and loved. The volume slider, the large on/off switch, the slightly recessed Reset button, that circular area where the cartridge would slot in and the smooth shape of the controller with its D-pad and three-button arrangement.

It was probably one of the first consoles many of us actually bought ourselves. Personally, I paid £20 for one, from my wages in the shipyard, from a bloke from Walney Island. Oddly enough, he showed me it was working, boxed it up with a selection of games and threw in a copy of Tuesday Lobsang Rampa's *The Third Eye*.

I have no idea why he did that, but after playing *Streets of Rage* for countless hours, it was always nice to

settle down for the night with a more metaphysical setting.

Its History

Following on from the Sega Mark III or, as we knew it, the Sega Master System (after a short redesign for Western markets), the world of technology was rapidly changing. The old 8-bit processors were being phased out in favour of the more powerful and faster 16-bit – something that was beginning to form in the home computer market.

Getting a 16-bit processor inside a home games console was the real Holy Grail, though. With NEC launching the PC Engine and Nintendo hot on its heels, Sega made the decision that a significant impact had to be made and that was with its new line of consoles.

On 19th October 1988 the Sega Mega Drive was launched in Japan, but it didn't quite hit the sweet spot with the buying public, being behind the PC Engine and Nintendo's Super Famicom. Better success, however, followed a year later with the US release, named the Sega Genesis, and the European release.

A few months after the November 1990 European release of the Mega Drive, it quickly became the most popular console for the region. And since it had been nearly a couple of years since its initial release in the East, there were a considerable number of games available ready for the Christmas rush.

Since then, over 31 million units have been sold and many millions more in the

Did You Know?

- The Mega Drive was Sega's last hope at making money off a console outside of Japan.
- The Japanese model was released with a Mega Drive modem.
- There are still games being made for the Mega Drive.
- EA made its own Mega Drive cartridges, cutting Sega out of the loop and profiting hugely in the process.

form of the licensed third-party releases, such as the aforementioned version for this year. Despite its age, then, it looks like there's life in the old dog yet.

The Good

Amazing arcade graphics. Backward compatibility (with a special unit) for Master System games. Reasonably inexpensive on its release.

The Bad

The controller didn't always stand up to much abuse over time. Follow-up add-ons didn't sell too well – the 32X, for example.

Conclusion

The Sega Mega Drive is a console from a time when arcade quality meant something and games were affordable.

Thank you, Sega.



▲ The Sega Mega Drive as we remember it



▲ The three and six-button controllers



▲ Not many people remember Haunting by EA. One of my favourite games, though

Component Watch

This week, we're looking at monitors that encourage you to be more hands-on

Ever wished you could use all the nifty touchscreen features in Windows 10 without having to submit to the low specs of a portable tablet? Well, maybe you can. All you have to do is pick up one of these touchscreen monitors. There aren't many on the market, but we've combed the web for the lowest prices on every half-decent model out there, and these are the ones we've found that we think are worth considering.

Deal 1: Lenovo ThinkVision T2014

RRP: £114.99 / Deal Price: £106.40

This 19.5" monitor is as cheap as touchscreens come, and it's pretty basic as a result. 1600 x 900 resolution, 5ms response time and only DVI-D and VGA inputs mean it's probably best suited to business or public-facing contexts, where its lack of interfaces and features aren't likely to be a problem.

Still, for around £100, it's not a bad deal at all if you're just after something with a touch interface!

Where to get it: Dabs - bit.ly/1NQXYk



Deal 2: Dell P2314T

RRP: £179.99 / Deal Price: £156.56

Spend £50 more, and you'll get something far more suited to home use – a 1920 x 1080 resolution means it's fully HD compatible, and between that and its widescreen 23" display, it's almost as good for watching movies and playing games on as it is for jabbing with your index finger. The 8ms response time is perhaps a little longer than most enthusiasts would want, but it's a satisfying budget option as far as we're concerned.

Where to get it: Box - bit.ly/1MTvI7W



Deal 3: Hanns.G HT231HPB

RRP: £179.99 / Deal Price: £162.47

Similarly priced to Dell's model, this 23" widescreen Hanns.G monitor is broadly the same, but the extra few quid gets you a

slightly superior panel, with a 5ms response time and multiple video settings, including PC, movies and gaming modes and a power-saving mode. It's also certified compatible with Windows 8 (and by extension, Windows 10). If you can handle the low-profile stand (it's designed to sit at desk level), then we can't think of any good reason not to pick it over Dell's screen.

Where to get it: LambdaTek - bit.ly/1R8uE5n



Deal 4: Viewsonic 24" LED TD2420

RRP: £249.99 / Deal Price: £203.17

Jump up a price tier and you'll find even more features. This 24" screen comes with everything you'll find on the cheaper monitors, as well as a pair of 2W speakers and scratch-resistant screen. Between a large discount and well-rounded feature set, we think this touchscreen is the best we've looked at. If you want one that can replace your regular screen and provide touch functionality, this is the one to go for.

Where to get it: CCL - bit.ly/1Na4zwP



Deal 5: Iiyama T2452MTS-B1

RRP: £249.99 / Deal Price: £221.99

Iiyama's touchscreen monitors tend to be upgraded versions of its high-end monitors, and that means this one has all the quality you'd expect: a 2ms response time, HD resolution and additionally a foldable stand that allows you to orient it in almost any angle you please. If you're planning to use the touch features a lot, it's more than worth the extra money over the Viewsonic screen.

Where to get it: Ebuyer - bit.ly/1NvNq7I





Bangladesh Shuts Off The Internet

Internet Of Things Comes Home

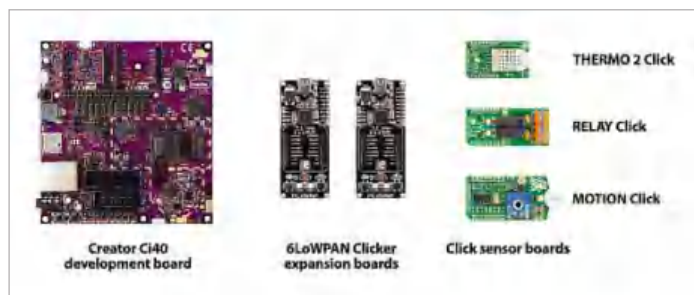
Development kit for IoT apps

Kickstarter has been in the news of late for a few projects that haven't turned out quite as they were meant to. Here's another that's been funded by the crowdfunding site, though, and it's one that we hope gets off the ground.

Imagination Technologies is the firm behind the Creator Ci40, a development kit designed from the ground-up for the Internet of Things world. The Creator Ci40 includes all optimised hardware and open source software that's needed for next-gen connected projects and, as it's a modular system, it's easy to assemble and code. So you get: a high-performance, low-power microcomputer acting as an IoT hub that can run various Linux-based operating systems, including OpenWrt, Grillo and Debian; two battery-powered 6LoWPAN Clicker expansion boards with a mikroBUS socket for adding sensors; and three Click companion boards – a

temperature sensor, motion sensor and a relay switch.

All of this will cost £80, with a £10 discount for the first 200 backers. The Kickstarter page for more details is found over at www.imgtec.com/creator/kickstarter.



Outage a "mistake"

A recent web blackout in Bangladesh that lasted for over an hour has been labelled as a "mistake" by the country's authorities. The reason this is particularly interesting is that media reports suggested that various web services were the intended focus of the shutdown after a court

returned death sentences for a couple of men convicted of war crimes. Having apparently intended to only block services such as Facebook and WhatsApp for security reasons, it turns out that, that web access across the entire country was accidentally cut off before being fixed later.

At the time of writing, the intended social messaging websites were still shut down over security fears.



For all the great things that the internet has brought us, in many ways it's undoubtedly a double-edged sword, and the issue of ad blockers demonstrates that perfectly.

Yes, it's great that we can get information for free, and the democratisation of media is an exciting and often positive thing.

At the same time, though, skilled content creators need to earn a living, and if people aren't willing to pay for that, then the alternative is advertising (or content created by untrained, uninformed and disorganised bloggers).

The problem, of course, is that a lot of online advertising is annoying. There's nothing worse than going on to a web page, reading a bit, then being interrupted by an overlaid ad that covers everything and follows you as you try to scroll down. Even worse, you often can't find any way to actually close these things, so you just click away and look for content elsewhere. That's not good for the reader or for the site in question.

Clearly, then, there's a need for balance. Websites need to only allow non-disruptive advertising, and users have to be willing to accept it in exchange for good content. If not, then be prepared to pay for what you take.

Anthony

Editor

SoftMaker's Office For Linux Enters Public Beta

Free to test

SoftMaker has launched the free beta version of its Office 2016 package for Linux.

The public beta went live mid-November, allowing Linux users to download and test the beta free of charge. Working with all modern Linux platforms, the suite affords its users access to all Microsoft Office formats – working seamlessly, so we're told. As for what the suite consists of, there's the TextMaker word processor, Presentations tool and spreadsheet program PlanMaker. On top of the core set of programs, Office 2016 for Linux

also comes with a set of add-ons that set out to improve the user interface and feature set of the Thunderbird email client. There is also high-fidelity PDF export, the facility to make real-time changes in text formatting via Live Preview, and speeds promising to be faster than LibreOffice.

With the final software release due out some time this month, it will be available to buy for £45 for the Standard edition (the Professional version adds foreign-language dictionaries for an extra £20) and you should trial it now if you're interested, over at tinyurl.com/3qgcck.



Meanwhile... On The Internet...

We've spoken a lot about the Investigatory Powers Bill in the last month or so, and how our powers-that-be seem focused on granting themselves significantly increased abilities to look into what we get up to online. Indeed, in the wake of the terrible terrorist attacks in Paris several of the political minds behind the Bill were extremely keen to explain the need for these extended abilities in order to prevent similar attacks happening in the UK (tinyurl.com/MMnet91a), and seem intent on making the Bill law as quickly as possible (tinyurl.com/MMnet91b) despite the opposition of some of the people they've given until just the middle of February 2016 to scrutinise its 300+ pages (tinyurl.com/MMnet91c).

The decision to push the Bill through parliament with what appears to be little more than rudimentary oversight is more than a little worrying to a lot of people (tinyurl.com/MMnet91d), especially in light of the restrictions on sharing information regarding what the powers are being used for that are ingrained within it (tinyurl.com/MMnet89c). At the moment, it seems, for many people the proposals are throwing up a lot of questions (tinyurl.com/MMnet91e), which makes the three months we have to get them answered all the more important.

Adele is ubiquitous at the moment. Her latest album is smashing sales records everywhere – after she decided to follow Taylor Swift's tactic of keeping her music away from streaming services – and she seems to be ever-present on chat shows here (tinyurl.com/MMnet91f) and there (tinyurl.com/MMnet91g) right now. She's even returned to the stage on which her star first went stellar in the US, *Saturday Night Live*.

With all this on the go, it's not surprising that the online world is all over her at the moment: she's been mashed up (tinyurl.com/MMnet91h), sketched (tinyurl.com/MMnet91i), had her vocals isolated and scrutinised (tinyurl.com/MMnet91j) and even been Miss Piggy'd (tinyurl.com/MMnet91k) – yet, despite it all, she's still come up smelling of roses rather than the stuff that makes 'em grow. Girl can do no wrong right now.



In about this spot on this page we used to run a little feature called 'Meme Watch', which was designed to highlight the latest Advice Animal (tinyurl.com/MMnet91l) or social network sensation... Then, well... memes were just everywhere, and the word became synonymous with virtually anything that was shared online, and that we covered within Meanwhile.... The choice was clear: either rename the whole page Meme Watch, or kill-off the strand. I think you know what we chose to do.

You may know that the term meme was first coined by Richard Dawkins in 1976 (tinyurl.com/MMnet91m), you may even have read *The Selfish Gene* – the book from which it comes (tinyurl.com/MMnet91n) and be able to recite his exact definition of it (tinyurl.com/MMnet91o), but how did a term from almost 20 years before the internet went big-time (tinyurl.com/MMnet91p) become so ubiquitous in the modern world? In the latest *What's Tech?* podcast, that's exactly what the presenters look to trace (tinyurl.com/MMnet91q).

While we were on the subject of memes – or the wider viral trends of the internet, at least – you may have come across the video of two partially dressed Japanese chaps larking about with a condom water balloon – first tweeted by Twitter user @xnysn (tinyurl.com/MMnet91r), and since retweeted over 9,000 times. If you've seen the clip, you'll know that when one lad drops said balloon on the other's head, it doesn't break (it is a condom, after all) and instead it sticks to the victim's head making it look like he's trapped in a fishbowl. It may sound wierd, and it is – but, dear reader, we LOLd extensively when we first came across it.

It would seem we were not alone (tinyurl.com/MMnet91s), and commentators are already tipping this a potential (and potentially dangerous – blocking your airways is always risky, lest we forget) online craze. So, er... maybe don't try this at home, eh (tinyurl.com/MMnet91t)?

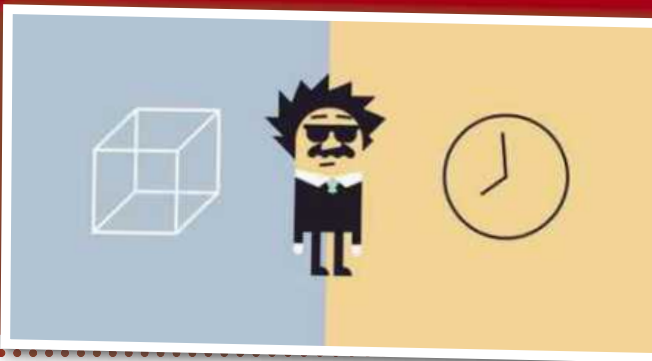
You may not know the names Jeff Allen or Thomas Kincade but, if you spend as much time on the internet as we do, you will probably remember what the former produced when he decided to paint *Star Wars* ships into the landscape paintings of the latter (tinyurl.com/MMnet91u), and thus started genre that has persisted (tinyurl.com/MMnet91v) and latterly informed the work of Dave Pollot (tinyurl.com/MMnet91wt).

Pollot, however, has decided to work a wider range of pop culture iconography into his kitsch augmentations (tinyurl.com/MMnet91x) including Optimus Prime, *Alien's* Xenomorph, and a personal favourite of our, *Futurama's* Dr. Zoidberg – who, incidentally, provides the vocal stylings for this great little video of real-life lobsters (tinyurl.com/MMnet91y).

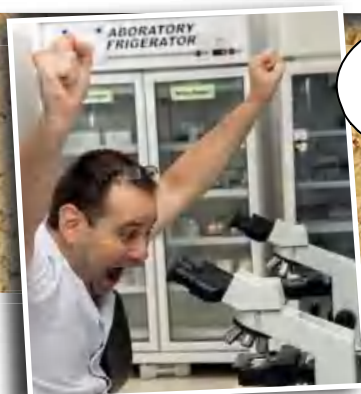
.AVWhy?

Videos For Your Eyes...
Not Necessarily For Your Brain

Quite frankly, if you want to get into the nuts and bolts of what makes Einstein's theory of General Relativity so damn important, we can't think of anyone better than The Doctor – well, a former Doctor anyway. So, we give you David Tennant ably explaining the 100-year old theory, and its shortfalls, in animator Eoin Duffy's fantastic little animation. It's well worth a look, especially if you don't know your dark matters from you timey-wimey stuff (tinyurl.com/MMnet91z).



Caption Competition



"The only person to ever read an EULA to the end."

This happy chap was the subject of our Caption Competition in issue 1389; here are your best efforts:

- **doctoryorkie:** "Glad to see he saw the funny slide."
- **Dwynnehugh:** "I said this hard drive had a virus on it!"
- **Dwynnehugh:** "The designer of the smallest micro server ever rejoices at his success."
- **wyliecoyoteuk:** "Don't shoot, I wasn't going to use the penicillin, honest!"
- **Think Tank:** "Eureka. I've found Antman."
- **BullStuff:** "Honey, I shrunk the cat and the dog now!"
- **BJM:** "Anybody who posts something along the lines of 'At last, I've finally found the Any key' will be publicly humiliated and banned from the Forum until the day after the end of the universe."
- **Thomas Turnbull:** "Yippee! I've finally found the clause that gets me out of TalkTalk's contract without paying them anything."
- **Thomas Turnbull:** "Where's that Higgs Bosun gone? I saw it a minute ago."
- **Mel Bradley:** "Bob was chuffed to have found the missing letters from the 'aboratory fridgerator' sign."

Thanks to everyone who entered, but the well done goes to doctoryorkie who came up with "The only person to ever read an EULA to the end.", and who has duly taken occupancy of the coveted bubble atop this very column.

To enter this week, come up with something to accompany the picture below, head to the 'Other Stuff' section of our forum (forum.micromart.co.uk), or email us your funnies via caption@micromart.co.uk, remembering to add the issue number to the email subject line. Cheers!



Sharp Calls On Workers To Buy... Sharp

Electronics firm needs help

Japanese electronics outfit Sharp has reportedly been in financial trouble of late.

Once one of the major brands on the high street, times have been a-changin' as our shops are full of LG, Sony and Samsung and time has not been kind on Sharp.

Its LCD business is making a loss and banks have been calling on the company to sell it off. Now, the firm has reportedly called on its employees for help in improving its sales. Sharp is reported to have said that it wasn't compulsory for employees

to buy Sharp products, but it has asked workers to choose Sharp over its competitors.

It's not really that far-fetched to assume that a company's employees would want to try their best to keep their place of work afloat. If that means buying Sharp TV sets rather than Panasonic's or LG's, then is that such a bad thing? It's a voluntary agreement by all accounts so this all sounds fair enough, really. It does, however, serve to highlight the precarious nature of the screen market, which we've talked about in Micro Mart before.

More Banks Support Apple Pay

TSB and Tesco sign on

Apple Pay has been the recipient of more bank support, with both TSB and Tesco Bank having signed up – allowing their customers to use iPhones and iPads to pay for goods in store or online. TSB is even offering customers 5% cashback on Apple Pay

purchases on the first £100 of purchases, assuming they are using a TSB MasterCard or Amex credit card.

Separately, Barclays is going to support Apple Pay from next year and with a reported launch due in China for early next year Apple's reach could be getting ever-wider.

Snippets!

Microsoft's Story Time

Microsoft has released an anthology of stories inspired by the work its researchers are doing. The anthology, *Future Visions: Original Science Fiction Inspired by Microsoft*, is available to anyone as a free download and reflects the idea that – as the “chief storyteller at Microsoft”, Steve Clayton, puts it – “In a way, you could say the world of Microsoft Research turns science fiction into science fact.”

Top authors such as Ann Leckie and Greg Bear were invited to Microsoft research labs to “expose them to what some people might think is science fiction”, ultimately leading to the written works that made it to the final anthology.

You can download the ebook from the usual places.

Drift Box Helps Sleep

An £80 box that connects to the HDMI input of your TV promises, by limiting the amount of blue light coming out of your television set, to improve your sleep. With buttons to increase or decrease the amount of blue light it emits, the Drift TV box can be programmed to automatically transition from full-spectrum to no-blue over a period of an hour so that you don't even notice the shift. Set a “wake-up” time for the morning, and it will bring the full spectrum back.

PS24PS4

Hot on the heels of Microsoft making its Xbox One backwards compatible with a host of Xbox 360 titles, Sony has said that it is working on PS2 emulation technology for the PS4 console. It's early days thus far, though, and the rollout of this “emulation” isn't clear. It could result in a selection of titles being made available to play on the machine via digital download, or it could mean a hardware update to allow the PS4 to play PS2 discs. The power of nostalgia remains a strong selling point.

BitFenix Range Expands At Overclockers

Pandora ATX introduced

The chaps at Overclockers UK have expanded its provision of the BitFenix Pandora range, specifically by introducing the new Pandora ATX case. Launching exclusively in black – with a couple of versions: the ATX, and the ATX Core – it comes with smart styling and is able to house full-sized ATX motherboards and one 360mm radiator.

This is setting itself as a great starting point for PC builders looking

to be creative with a custom PC build, and comes with a 2.8-inch ICON LCD display in the front, allowing for an added personal touch to the front fascia (the display is connected to the motherboard via a USB header).

With out-of-the-box cooling, thanks to a built-in 40mm front fan and a 120mm rear fan, the case also supports up to 440mm long graphics cards, four 2.5” SSDs and four 3.5mm SSDs. Have a look at www.overclockers.co.uk.



Google+ Redesigned

It's a bit like Reddit

Google+ is likely to be one of Google's lesser-used services among those of you reading this. The social network that is used by far less people than Google would like to admit to hasn't exactly proven to be the company's finest hour, but it's now handed it a revamp with a complete redesign.

A Google executive wrote in a blog post that Google+ was now going to focus on Communities and Collections and it's done this based on the needs of those who do actually use the service. Essentially, these are now “front and center”

of Google+, allowing users to join groups in discussions on various passions and hobbies, and compile posts on their interests.

Is Google going for the Reddit/Pinterest audience? It certainly would appear that it's focusing on consumers with specific interests rather than providing a more general social place to hang out online, such as Facebook. Makes sense really, but will it lead to a wider audience?



LG Cancels Smartwatch After Six Days

Now that's a quick turnaround

When a new slice of hardware finally makes it to market, the bods behind it should be celebrating, not sitting head in hands wondering what on earth went wrong. Yet we imagine a scenario more like the latter occurred at LG when its Watch Urbane 2nd Edition LTE smartwatch was cancelled after having been on sale for six days. Six days!

After reports initially pointed to a "hardware issue" being cited as the problem, *The Telegraph* later reported that the fault concerned image quality under testing over a long period. Whatever the reason, this is all rather embarrassing for LG. This was its first smartwatch with LTE built-in and it featured Android 6.0 Marshmallow, which was quite a coup.

Not so much now.

Dell 'Fesses Up To Security Hole

PCs susceptible to hacks

Dell has admitted that some of its PCs contained a security vulnerability. In a statement on the matter, it admitted that the eDellRoot certificate installed by the Dell Foundation Services application "introduced a security vulnerability" and – while Dell was keen to point out that this wasn't malware or adware and that the certificate didn't collect any customer

data – the vulnerability has put the company in an embarrassing position.

Dell didn't specify in its statement which of its PCs were affected, which wasn't massively helpful, but it did issue a software update that checked for the certificate and removed it. The statement also thanked customers for bringing the matter to its attention. Thank goodness they did.

SatNav Sends Drivers To Austria

Epic re-route

The Austrian village of Preitenegg isn't notable for anything in particular, except that Garmin's SatNavs have been re-routing European users beset with traffic jams to the Austrian mountains.

Whenever users found themselves having to ask for alternative routes when trying to avoid traffic jams, no matter where in Europe they were actually based or trying to get

to, they were being re-routed to Preitenegg, which is quite the diversion. By all accounts, Garmin users have been warning the company of the software error since July, so it beggars belief that the glitch hasn't been fixed, or more widely reported on before now.

Here's a question: what if drivers were actually heading for Preitenegg in the first instance? Where are they re-routed to then?

Windows Is 30

Happy Birthday, old chap

It was on 20 November, 1985 that Windows 1.0 was released to an eager public. The first iteration of the operating system was clearly a huge step-up from MS-DOS and perhaps the best celebration we've seen of the 30-year anniversary came over at Gizmodo, which looked back at all the Windows adverts from Microsoft over the years.

Our favourite? Of course it's Steve Ballmer's painful, shouty 'Miami Vice' rant about everything Windows is capable of, although the vomiting girl web advert for Internet Explorer

8 is right up there with some of the worst marketing of its kind.

Anyway, Windows has done okay for itself as it turns out, and now Windows 10 is proving mightily popular among businesses with half of all enterprise firms expecting to upgrade by the end of next year according to Forrester Research. And that's without the help of any ill-judged adverts featuring vomiting, too.



XFx AMD Radeon R9 390X Double Dissipation Core Edition

XFx lures hard-core gamers with a monster R9 390X design

DETAILS

- Price: £324.98 (Novatech)
- Manufacturer: XFX
- Website: xfxforce.com
- Requirements: 750W PSU, Windows 10, deep pockets
- Part No: R9-390X-8DF6

As regular readers are aware, in Micro Mart we pride ourselves on bringing you technology that does something worthwhile at an affordable price. But occasionally as a reviewer I need to take a walk on the wild side – a phrase that certainly sums up the XFX R9 390X Double Dissipation Core Edition.

If you like subtle stuff, then I'd look away now, because this kit has all the balletic finesse of a maniac loose at a hammer convention.

For those unfamiliar with the many stratified layers of performance, the 390X comes

with a small notch below the completely insane 'Fury' level in AMD's current GPU line-up.

Technically, it uses a derivative of the Hawaii XT core that first appeared in the Radeon R9 290X, though AMD renamed it Grenada XT these days.

That only uses the GCN 1.1 architecture, not the new 1.2 model, though it's still compatible with DX12,

Vulkan, Mantle, and any other popular video APIs you're likely to encounter on the PC.

The specification, as you might expect for this money, is suborbital. The 438mm² die features approximately 6.2 billion resistors, organised into a whopping 2,816 unified shaders coupled to 8GB (yes, people, 8GB!) of GDDR5 via a 512-bit memory bus. There are 64 ROPs and 176 TMUs, and the memory offers a massive total bandwidth of 384GB/s.

If you consider that displaying a 1080p display 24 bits deep at 60fps takes

350MB/s, in theory this card could generate more than a thousand of them simultaneously.

With that level of power on tap, the forte here is to handle multiple 4K displays in a gaming environment like most other cards cope with rendering a single 1080p one.

By default this card can drive up to six displays through Eyefinity mode, and it comes with dual DVI, HDMI and full-size DisplayPort outputs.

Obviously, with all this GPU power it makes relatively short order of most tests, and



Benchmark Performance On 3DMark

3DMark		XFx R9 380X DD Core Edition	Reference R9 290
Fire Strike	Performance	11262	9776
	Extreme	5579	4801
	Ultra	2956	2559
Sky Diver		29744	27526
Cloud Gate		29353	28250
API Overhead	DX11 Single	1,082,743	1,098,603
	Mantle	21,280,195	19,823,592
	DX12	19,020,863	17,778,641
System Power	Idle	94.2w	90.9w
	Peak	433w	379w

Tests performed Asus Sabertooth X79, Core i7-3960X CPU, 16GB DDR3 quad-channel memory, Crucial MX100 SSD, running Windows 10 Build 10586.11



I was forced to break out the 3DMark Fire Strike Ultra test just to see it actually break a sweat.

For most gamers there's more power here than you could reasonably need or want, given current titles.

However, there are a few things about it that aren't ideal.

The first and most obvious one is the sheer scale of this card, because XFX's excellent Ghost Thermal 3.0 Technology system might keep it remarkably quiet, but it doesn't make it any smaller.

From the back plate to the deepest point is 281mm, making it unsuitable for smaller cases, and weighing

TechPowerUp GPU-Z 0.8.6	
Graphics Card	
Name	AMD Radeon (TM) R9 290 Series
GPU	Hawaii
Technology	28 nm
Release Date	Jun 18, 2015
BIOS Version	015.049.000.002.000000
Device ID	1002-67B0
ROPs/TMUs	64 / 176
Shaders	2816 Unified
Pixel Fillrate	67.2 GPixel/s
Memory Type	GDDR5 (Hynix)
Memory Size	8192 MB
Driver Version	15.201.1151.0 WHQL / Win10 64
GPU Clock	1050 MHz
Default Clock	1050 MHz
AMD CrossFire	Disabled
Computing	<input checked="" type="checkbox"/> OpenCL <input type="checkbox"/> CUDA <input type="checkbox"/> PhysX <input checked="" type="checkbox"/> DirectCompute 5.0

in at 921g, it also needs to be properly secured.

The other requirement at least a 750W PSU, with both eight- and six-pin PCIe power lines. That hints that power consumption is high, and it is.

Under stress testing, my LGA 2011 test platform was consistently drawing over 430 watts, and a decent portion of that power was going to the GPU. When you consider that those numbers don't include the screen(s), the power bill for long gaming sessions might well add up.

If you want to use even more juice, XFX has unlocked the voltage, so you can tweak the shader and memory clocks until the lights in your home dim appreciably.

And then there's the purchase price, which more than most people would spend on their motherboard and CPU combination. If you want this power and excellent build quality, then this is the cost, regrettably.

Looking beyond the costs, there are two important things that need to be said about this card for those who potentially might be interested.

The first is that if you're not looking to game with 4K or more than three displays, then there are cheaper cards that will do that job admirably. The difference between 100 frames per second and double that is mostly irrelevant, however brilliant a gamer you might be.

The other is that the cheapest Fury design is about £85 more, has even more shaders and bandwidth, and has the latest technology, though half as much memory.

But actually the real threat to success here is the R9 290X cards still in the channel, because in the majority of scenarios they perform almost as well and can be found for £50 less.

As much as I like what XFX did with this card, and it is gloriously engineered, those who want ultimate power will still want an AMD Fury or an Nvidia GTX 980 card. So while this card is a monster, there are even bigger ones out there.

mm Mark Pickavance

Massively powerful video card for multi-display gaming



Acer Iconia One 8

Acer offers a reasonably specified tablet at a tempting price

DETAILS

- Price: £105.59 (Insight)
- Manufacturer: Acer
- Website: www.acer.co.uk
- Model No: B1-820

Buying a small tablet today, you're effectively forced into choosing something high quality and expensive or a low-cost device that has a poor display.

Thankfully, there are still a few mid-range devices, although the pricing of the Acer Iconia One 8 tends towards the budget end of the market.

Acer sells a number of hardware configurations under the Iconia One 8 banner, and the review model was a B1-820 variant that only comes in white.

Built around the quad-core 1.33MHz (1.83GHz with burst mode) Intel Atom Z3735G, it has 1GB of DDR3L RAM and 16GB of flash storage, of which 9GB is available to the user. That capacity can be expanded by another 32GB through a micro-SD card slot.

What you need to realise is that Acer makes three different versions of the Acer Iconia One 8. Two are based on the Intel Atom, the B10-810 and the B1-820. But the B1-830 uses the octo-cored MediaTek MT815V (ARM based), and you can get that for the same price or cheaper than its Atom-based brothers.

All of them have a display using IPS technology with a natural resolution of 1280 x 800. It has a reasonable colour gamut, but it's not on



par with the likes of the Tesco Hudl 2 or even the Google Nexus 7 (2013).

However, it's sharp and readable, even if it isn't especially high resolution. The best aspect of the screen is an exceptionally good touch sensor that you can use with any pointed object as

a drawing stylus. That Acer didn't include one with it is therefore an odd omission.

Where the design also trumps the now discontinued Hudl2 is that it comes with Android 5.0 Lollipop, and one might reasonably hope that it gets a Marshmallow upgrade at some point.

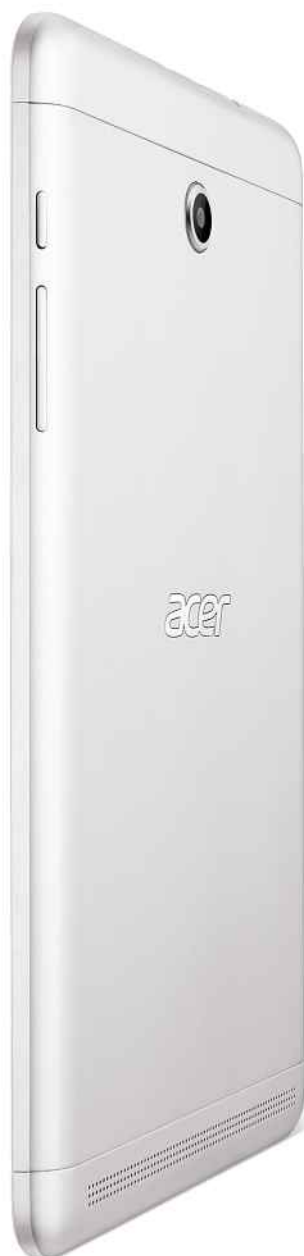
Intel has been encouraging its biggest customers to use the Atom for tablets over the more traditional ARM options, and the chip in this one has also ended up in the Lenovo Tab S8 and Dell's Venue 98 Pro. I hope they all got a good deal out of this choice, because in performance terms this chip doesn't deliver the level of benchmark scores that a premium Android tablet can achieve. Overall, it's marginally faster than the aging Asus Nexus 7 (2013) on many of the tests.

The issue seems to be the GPU, as it can't handle *Asphalt 8* smoothly with full settings or some of the other more demanding Android titles like *Hearthstone*. However, it can play *Simpson's Tapped Out* reasonably well.

As a rule, tablets that use Nvidia's Tegra 4 chip are far quicker than this for games, and they also have a superior power consumption profile.

Acer promises ten hours of battery life, though I'm

Tests		Acer Iconia One 8	Nexus 7 (2013)
AnTuTu Benchmark v5.7.1		33971	27275
3DMark	Sling Shot ES3.0	608	568
	Ice Storm Unlimited	12712	10557
GeekBench 3	Single	728	616
	Multiple	2036	1395



unsure what its tablet was doing for that time period. I managed about eight hours of actual activity, and playing games will exhaust the 4,555mAh battery in around three hours. You can exceed

vendors for as little as £100. Surely it's worth considering if only for the competitive price and the pre-installed Lollipop release?

Well, it would be, if Acer hadn't worn its hobnail boots

petulantly put back at the very next system update.

I was going to recommend this hardware for users with modest expectations, but given how Acer pre-abused it, I can't in good conscience do that now.

The fine irony of this is that had Acer exhibited a modicum of restraint, this tablet would have been worth at least a tenner more to this reviewer.

mm Mark Pickavance

“ It's sharp and readable, even if it isn't especially high resolution ”

the ten-hour mark only by restricting yourself to just browsing web pages, in this reviewer's experience.

I could mention the two cameras Acer put on this tablet, but neither come close to contradicting the view that those who want good photographs should consider buying a camera.

Other limitations are that the wi-fi is only 'n' class and there's no NFC or any phone SIM mobile options.

Yet even with these minor failings, this is a serviceable piece of hardware that you can be found from some

of infinite crapware and done a jig all over the Android installation. What's curious about this is that it hasn't taken the Samsung or Sony track of mucking around with the interface, because for the most part this is a vanilla Android 5.0 experience.

No, instead it's gone on a rampage installing all manner of apps that it's decided its customers want in an uncontrolled fit of hardware maker's hubris.

If this wasn't annoying enough, most of these apps can't be removed, and those that I managed to evict were

A serviceable tablet that Acer pre-loaded with crapware



Asus M52AD-Xtreme

Interested in a higher-performing family PC?

DETAILS

- Price: ~£920
- Manufacturer: Asus
- Website: goo.gl/MRCLUQ
- Requirements: Keyboard, system comes with a USB mouse, monitor

Rather than specifically targeting a certain PC audience, Asus has decided to cover all the bases with the M52AS-Xtreme system. Here is a PC that is advertised as the 'Power Hub for Work and Play', one that can comfortably cater for gamers, students, home workers or families.

It manages to do a decent enough job of it too, thanks in part to the Core i5-4460 processor, running at 3.2GHz, 8GB of 1600MHz memory, a large 2TB SATA-3 hard drive, and a copy of Windows 8.1 pre-installed, along with a collection of Asus-branded programs and tools.

Asus has also installed an Nvidia GTX745 graphics card, with 4GB of memory; an 802.11 a/b/g/n/ac wi-fi card with separate low-profile antennas; a six-in-one card reader and a DVD-RW optical drive. It's a good enough mix for a family PC, and with the combination of GPU, CPU and the amount of memory, there's enough performance to keep everyone reasonably happy.

Connectivity on the M52AD-Xtreme is certainly enough for most users, with HDMI, DVI and VGA from the rear of the GTX745 and three USB 2.0 ports, along with an impressive six-port audio block at the rear of the motherboard (with further HDMI and VGA, but blocked due to the presence of the GPU).



▲ The Asus M52AD-Xtreme is a tidy-looking PC

The front of the case houses the multi-card reader, as well as a further two USB 2.0 and two USB 3.0 ports, with headphone and microphone ports finishing the connectivity off nicely.

In terms of performance, the Asus M52AD-Xtreme did reasonably well. It's obvious it'll never be able to compete with a fully blown gaming setup, out of the box at least, but it did manage to score 4,451 overall in 3DMark11. Furthermore, the system performed well in PCMark8, with a score of 4,560. Although not the highest scores we've ever seen, they're good enough for the average home user.

Aside from the performance, you also get CyberLink PowerDirector and PhotoDirector, an Asus WebStorage setup with 100GB of cloud storage available, Music Maker Jam audio software and an all-in-one system manager tool that will keep you up to

date, back up and recover your work, and support your Asus PC through its lifetime.

The design of the system is pretty good. The overall style is a black/grey metallic effect, with red trim running along the front and a red 'foot' at the front. There's also a large circular, metal power button, which emits a white LED behind it when powered on, and the optical drive is hidden behind a glassy faceplate covering the drive bay, as well as one on the secondary drive bay.

Internally, there's plenty of space to keep everything cool, although to be fair the choice of components aren't going to generate a huge amount of heat. Sadly, there's not a lot of room for upgrade potential with the choice of motherboard, but you can always swap out the GPU for something better or upgrade the memory at a later date without too much trouble. The only real



▲ The performance of this PC is certainly good, but it's a little pricey

negative we have is the cost. At around £920, we would expect something with a lot more performance and choice of components. Just looking through the advertisers in these pages will reveal a far more capable system for less money than this PC.

The Asus M52AD-Xtreme isn't a bad family PC, but there's certainly room for improvement – perhaps an SSD and hard drive, and maybe an upgraded GTX950 GPU? In the end, though, it's just a tad too expensive.

mm David Hayward

A little too expensive for what you get



BenQ GW2455H

A flicker-free screen at an exceptional price

DETAILS

- Price: ~£105
- Manufacturer: BenQ
- Website: goo.gl/2JNzLP
- Requirements: HDMI or DVI cable (it comes with VGA)

There's still plenty of life left in the 24" monitor market. Talk of this screen size being the last generation, with 27" being the new poster child for monitor companies, is far from correct, with many manufacturers still producing some excellent examples.

BenQ is one such manufacturer, and the GW2455H is testament to the fact that you can still get a well-produced 24" monitor in this day and age.

The GW2455H features a flicker-free LED 24" VA panel placed within a splendid glossy bezel. Usually a glossy bezel is a no-go for monitor enthusiasts, but BenQ has managed to create an anti-fingerprint and dust finish to the GW2455H, giving the monitor an always clean, fresh look to it.

It has a dynamic contrast ratio of 20,000,000:1, native contrast of 3000:1, an 8ms response time and maximum resolution of 1920 x 1080. The avid gamers among you may well balk at the response time there, but for the vast majority of users it's more than enough for everyday tasks. And the connectivity is generous enough, with VGA, DVI and HDMI, plus a headphone port.

The main difference here with the GW2455H over most



▲ The BenQ GW2455H produces a superb quality image



▲ It'll make for an excellent day-to-day monitor

“For the vast majority of users it's more than enough for everyday tasks”

of the competition is the fact that BenQ has used a VA panel instead of the far cheaper TN alternative. Okay, so it's not an IPS panel, but consider it as the next step down, with better than average viewing angles, contrast and colour accuracy.

Add to that the BenQ design features such as low

blue light, Senseye 3 and an improved native contrast ratio, and you have a decent monitor on your hands. Sadly, though, there's limited ergonomic movement, except for a standard tilt from -5° to 20°.

The overall design is good, however. The glossy finish around the bezel is matched

on the oval-shaped base and small connecting monitor stand. The result is a well-presented monitor that's better constructed than most 24" everyday screens you'll come across.

The quality of the displayed image is excellent, considering it's not an IPS panel. It's perfectly clear, with a deep range of quite realistic colours and it produces a sharp and crisp effect on everything it displays. There's a slight graininess when the monitor is displaying a solid light-colour, though, which is probably down to the matt-like panel itself, but it's not something that's going to distract you from the viewing. If anything, it's a little easier on the eyes when bright whites and pale colours are displayed. The overall effect, though, is one of quality.

The best part of the BenQ GW2455H, though, is the price. At an average of £105, depending on where you shop, it's certainly good value, and it's ideal as an everyday monitor.

mm David Hayward

A decent all-round monitor, with an excellent display



Last Horizon

We attempt to save humanity by reaching to the stars

DETAILS

- Price: £3.19
- Manufacturer: Pixeljam
- Website: goo.gl/zHf7RU
- Requirements: Windows 7 or later, Mac OS X 10.6, 1GHz CPU, 512MB RAM

Although the big game studios have had some impressive titles launched of late, the likes of *Fallout 4* springing to mind, it's the indie game studios where the best creativity is springing from.

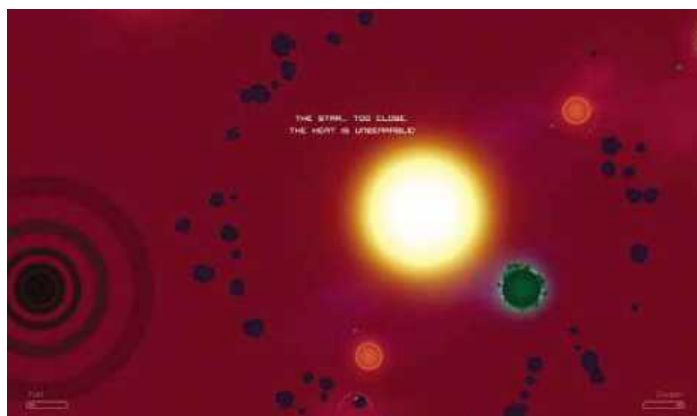
We've said it before that the indie scene is on fire at the moment and coming up with some of the most imaginative PC games. But the ones that tend to stand out the most for us are those that include an element of retro-like gaming, with some clever mechanics and physics, while still sticking to an original storyline.

Last Horizon by developer Pixeljam is one such game. It's very much a mixture of *Thrust*, *Asteroids* and *Starflight* for the Sega Mega Drive. It's an atmospheric space survival game, where you're tasked with piloting the last human spaceship from a doomed planet into the void, to try to locate a new planet to colonise.

Your ship is capable of harvesting the raw ores for fuel and repairs as well as oxygen from a planet, so in order to be able to continue flying and exploring the universe, you're required to land on the various planets you'll come across to essentially mine them of their resources. However, it's not quite as straightforward as it first appears.



▲ Leaving your broken homeworld, into the unknown



▲ A black hole, star and harvestable planet. With low fuel and oxygen, you have to try to land

Space is a hazardous place: there are meteors, comets, rogue planetoids and the occasional black hole. By guiding your ship, *Thrust*-style, through the cosmos, you can carefully avoid most of the objects out there that can cause significant damage to your ship and deplete its limited supply of oxygen.

Gravity, though, is the biggest killer of ships in this universe. When approaching a planet, you to have carefully adjust your landing speed and trajectory to take the planet's unique gravitational field into account. Too much thrust and you'll plough into the surface and make a pretty pile of smouldering metal. Too little and

you risk shooting off back into space and missing the target. It's little wonder you see some very relieved Nasa scientists after a successful landing.

Once you've successfully landed, with minimum damage, your ship will automatically start to harvest the planet of the elements needed to replenish the fuel and oxygen, thus repairing the ship. If you're lucky, you may also come across some alien life to categorise and meet.

There's a fine balance needed throughout the entire game, though. If you take too many resources from a life-giving planet, then you've effectively killed that planet, and you may well anger the local sentient life

on a nearby sphere. Also, you need to keep a careful eye on your fuel and oxygen levels, as too little of each will spell certain doom.

There are other clever factors involved too. As you probe further into the cosmos, ever pointing in the general direction of the perfect planet, you'll begin to navigate some tricky planetary physics. For example, a life-bearing world could be waiting for you to land on it, but your dwindling resources could be red-lining, and there might be a pretty big star close enough to create a delicate gravitational nightmare. Without a high degree of dexterity, you'll either plummet into the planet's surface or end up being fried in the star.

Last Horizon is a surprisingly good indie game. It's graphically quite simple, but the combined story, physics and gameplay make it well worth purchasing and a game that'll keep you entertained for quite some time as you attempt to unlock its secrets.

Considering that it's only £3.19 on Steam, we think *Last Horizon* is a welcome break from the latest triple-A titles.

mm David Hayward

Clever, inexpensive and surprisingly addictive



Rescue Your Video Tapes V8

Recover and convert those old video tapes into a digital format

DETAILS

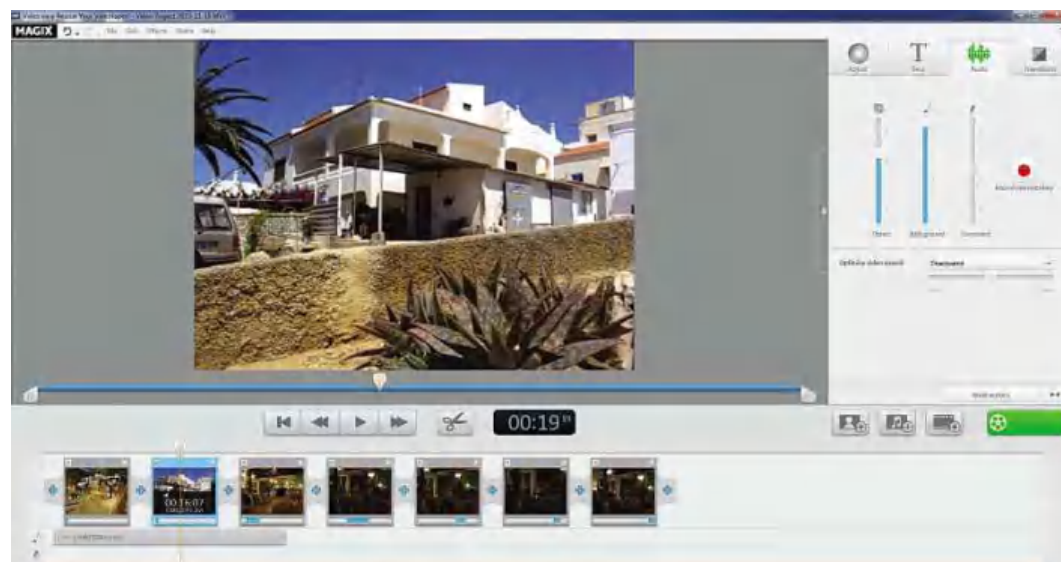
- Price: Rescue Your Video Tapes V8 £44.99
- Manufacturer: Magix
- Website: www.magix.com/uk
- Minimum Requirements: Dual-core 2.0 GHz CPU, 2GB RAM, 1GB disk space, Windows 7 or later

I think it's fair to say that we've all embraced digital technology in just about every form. The most visible is the mobile phone, a device encompassing everything from a camera to a GPS, media player organiser and web browser. And it also makes phone calls. Yet there are people still hanging on to analogue devices, simply because they have media recorded on them. This is particularly true of video tapes, either recorded on tape-based video cameras or on VHS tapes (remember those!).

If you happen to fall into this category, you have two options: either to keep a player in working order to play them on or to re-record them onto digital media. The second option is the more permanent solution, because nobody makes VCRs anymore, and decent second-hand units are becoming scarce.

This latest product from Magix offers a quite inexpensive method of transferring those sometimes irreplaceable memories, as long as you still have (or can borrow) a device that will play them.

The Magix Rescue Your Video Tapes V8 package is a hardware-software solution that includes a USB based capture device, a SCART to RCA phono conversion cable and the latest Video Easy HD software. It's worth mentioning here that the quality



▲ The software has built-in scene detection

of the recording you make will ultimately depend on the quality of the original footage. The fact that you're using a software product capable of HD output doesn't mean that you'll end up with HD quality video. Having said that, once the video has been transferred to digital media, it will not degrade over time as tapes surely will.

Installation is straightforward, other than the usual moan from Windows about unsigned drivers from the capture device. Once you ignore that, installation continues as normal. In use it's simply a matter of playing the tapes while recording them onto your hard drive. The software has built-in scene recognition that creates new clips for each new scene, making it much easier to sort them into the appropriate running order. I don't know about you, but I tend to take video when the opportunity presents itself, not in any particularly planned order, so these individual clips allow me to fix that.

The supplied software when compared to most of Magix's

other range of video editors is what you might call adequate. It's a no-frills video editing suite that includes transitions and titles, with the facility to add still images, audio files and voice-overs to the video before saving it. Naturally, the program includes rudimentary editing tools, so you can clip away those wobbly or out-of-focus bits. It also included quite a nice correction tool under the adjustments menu, providing manual or automatic correction for colour, brightness, contrast and saturation. There's also a range of effects templates that can fix things like border distortion or removing the black bars you sometimes get above or below the frame. Other effects include old movie, zoom in or out, and fades to black for the start and end of your movies. They're simple to use; you simply drag and drop them onto the clip to apply the effect.

Output options include DVD, Blu-ray and WMV, although DVD would be the obvious choice for footage recovered from VHS tape. Saving your video onto Blu-ray media would be somewhat

pointless, unless you were simply using the extra storage space the media provides.

Considering the size of the unit compared to some of the capture devices I've reviewed in the past, the output is remarkably good. There's very little in the way of introduced artefacts, and the colour correction allows you to significantly improve the original footage. Admittedly, the video editing is a little basic but it does the job, and that is ultimately what matters most.

mm Joe Lavery

Easy to use and does what it aims to



GROUP TEST

Colour Laser Printers

A colour laser printer was once the dream machine for any home owner. Even a busy office would once have had to send off their colour prints to another part of the building or make do with an inkjet.

These days, though, a colour laser is an affordable luxury, but just what can you get and are they any good?

We take six models out for a spin and see what they're like and how much they cost to run.

Colour Laser Printers

Brother HL-3170CDW

DETAILS

- Price: £199.98
- Manufacturer: Brother
- Website: goo.gl/nStfyA
- Requirements: Windows, Mac OS X, Linux, Server versions of OSs

This Brother HL-3170CDW is a reasonably compact printer that's aimed at small, busy offices or homes, where the users need lots of connectivity and reliability. It would just be another bland-looking box if it wasn't for the added benefit of it being one of the newer breed of LED technology printers, which makes it more reliable than the average laser printer and a little cheaper to produce too.

However, the technology doesn't just stop with the LED feature. The 333MHz processor, with 128MB of memory, helps drive a printer that has ample connectivity in the form of USB, Ethernet and 802.11 b/g/n wi-fi. Mobile connectivity is supported well, with AirPrint, Cortado Cloud Print, Google Cloud Print, iPrint&Scan and Wi-fi Direct. And, of course, you can administer the

printer functions over a network just as well as if you were standing in front of the tiny LCD control screen.

Furthermore, you get automatic double-sided prints to help save paper and a 'Deep Sleep Mode', which can be configured to send the printer into hibernation for a user-specified amount of time after the last print. When in this mode, the printer drops to a very economical 1.5W power consumption mode, and to add to that, when a print does come through, it takes about 12 seconds for the printer to 'wake' up and start printing.

There's a 250-page input tray as standard, which fed our text test pages through at a rate of around 16ppm, with the first page appearing within 18 seconds of the request being sent through. The colour PPM was good too, coming to around 12ppm.

The page quality was very good indeed, and the printer accepted everything we threw at it without any misprints, queue errors or anything resembling a lack in printer system resources.

The text page quality was sharp and readable, and the colour page test was remarkably good and of a much higher



quality than we initially thought it would be. In fact, the HL-3170CDW has one of the better colour laser print-outs we've seen in a long time.

The replacement cartridges are reasonably priced as well. The genuine Brother multi-pack for this model costs in the region of £148 and offers a yield of 2,500 for the black and 1,400 for the three colours. This setup comes to around 2.2p per page for consumer costs, but we also found a premium brand that offers a 2,500-page yield for the black cartridge and a better 2,200 pages in the colour cartridges all for just £84.86, making the consumer running costs 0.9p per page.

Although the initial cost of the printer is £199.98, depending on where you shop, the lower running costs and higher than normal yield of the average toner replacements make for a far more efficient printer. And considering the quality of the print you get, the ample connectivity and the power saving feature, the Brother HL-3170CDW certainly has a lot going for it.



▲ The Brother HL-3170CDW is a good, LED technology printer



▲ Toner is reasonably cheap too

Epson AcuLaser CX17WF

DETAILS

- Price: £350
- Manufacturer: Epson
- Website: goo.gl/AooAcJ
- Requirements: Windows, Windows Server, Mac OS X

Once upon a time, the multi-function office laser printer was a monster of a machine, gently humming in the corner of the room and being the cause of local brown-outs when it fired up. That's not the case these days, as Epson hopes to prove with its AcuLaser CX17WF.

This is a four-in-one multi-function colour laser with print, copy, scan and fax capabilities using the Epson AcuBrite toner technology system. The AcuBrite system states that by using smaller, chemically grown toner particles, along with special pigments, a far greater degree of print quality can be achieved. As well as quality, the AcuBrite system claims there's less of an environmental impact through its manufacture and use.

The CX17WF comes with USB, Ethernet and wi-fi and has support for a number of network management protocols such as SNMP, HTTP, DHCP, WSD, LLTD, BootP and so on.

It comes with a 150-page standard input tray, which fed our text page tests through at a reasonable 14ppm, with the first page being printed at around 16 seconds. The colour pages were measured at a more sedate eight pages per minute, with the first colour page printed within 20 seconds of the data being sent.

The print quality was good throughout. The text was clear, sharp and very readable. The colour pages too were good,



▲ The Epson AcuLaser CX17WF is the office all-in-one king of laser printers

“ The print quality is good, it's reasonably quick and the toner is cheap ”



▲ The quality of the output is quite good too



although the reds did seem a little darker than what we're used to. However, the other colours used were quite bright and vibrant – enough for a good print out of a photo.

The genuine Epson toner multi-pack we found cost £160 and offered a 1,400 page yield for the three colours and 2,000 pages for the black. This came to around 2.6p per page, but we also found a premium multi-pack of cartridges for just £48, with the same colour yield of 1,400 but with 2,200 pages for the black. This dropped the overall cost to an impressive 0.8p per page, making this quite a cost efficient printer to consider.

However, despite the good points, we did come across a couple of problems. The first was with the setting up of the printer, where some of the Scan-To options refuse to work. We also had a problem where the wi-fi was continually dropping, even when we moved the printer closer to the router. This we solved by setting the printer with a static address, so it could have been something to do with the router as opposed to the printer. Thankfully, there was no problem when using Ethernet or a direct USB connection.

The Epson AcuLaser CX17WF is an overall good printer, one of the better models you'll likely see in an office. The print quality is good, it's reasonably quick and the toner is cheap – if you use the premium brand. The initial cost is a little high, though, at £350, but it's certainly a capable workgroup and multi-user printer.

Colour Laser Printers

Lexmark CS310n

DETAILS

- Price: £196
- Manufacturer: Lexmark
- Website: goo.gl/yqNCQn
- Requirements: Windows, Windows Server, Mac OS X, Linux

The Lexmark CS310 range was launched a couple of years ago and has proved to be quite popular for home owners, small businesses and enterprise users alike.

The Lexmark CS310n is a four-colour cartridge printer that can take 250 pages on a standard input capacity tray (with the option to purchase an additional sheet feeder) and comes with a decent-sized 750-page CMY colour-and-black toner cartridge.

Connectivity is a reasonable mix of USB and Ethernet, with an optional wi-fi adapter available through various Lexmark retailers. It's powered by a surprisingly powerful dual-core 800MHz processor with 256MB memory installed as standard, but again this can be upgraded to a far more impressive 2GB, should you ever deal with ultra large documents from many users.

The business elements of the printer are some of its main features, as it's compatible with Windows, Mac, various Linux distros, Citrix MetaFrame, Unix and Novell systems. That same support also extends to the many network printing protocols and methods, as well as network management protocols. There are far too many to list, but simply put, there's not much this printer can't be connected to and work with.



▲ The Lexmark CS310n is a reasonably good printer



▲ But the running costs are quite high

For the home, though, this is quite an impressive workhorse. The OS and networking support may seem a little extreme for printing out the odd receipt or full-colour holiday snap, but at least you're guaranteed a higher than average level of technology.

In terms of quality and speed, the Lexmark was

certainly very good. The text test page printed within 12 seconds for the first page, then around 25ppm thereafter. The text was clear and readable, and although we've seen sharper prints before on other models, generally speaking the output from the CS310n was more than adequate.

The same can be said for the colour output, which ran the first page in 14 seconds and after that settled down to about 27ppm. Colours were good, reasonably bright and well balanced. Provided you're not considering printing out a full-colour magazine, you'll be satisfied with the output.

The cartridges can cost a fair bit, however. The best price we found for a multi-pack (black, blue, yellow and magenta) was £281. This is for a 3,000-page yield on the colours and 4,000 pages with the black, which roughly equates to 2.2p per page, and that's with a genuine Lexmark set of cartridges. The premium brand offering comes to £185, with the same page yield as the genuine Lexmark cartridges, which translates to around 1.4p per page.

It's certainly quite a lot of money to run, especially when you take into consideration the fact that we've already looked at printers that have running costs of less than a penny a page. But the print quality is good, and the printer isn't priced too badly, so there is a slight balance.

Overall, though, we think you can find a better deal than the Lexmark CS310n.



Samsung CLP-360

DETAILS

- Price: £160
- Manufacturer: Samsung
- Website: goo.gl/gMHxwP
- Requirements: Windows, Windows Server, Mac OS X

The award for the world's smallest colour laser printer may well have to go to the CLP-360 from Samsung. At just 382 x 309 x 210mm, this is an amazingly compact printer that will look great perched on the desktop at home or in the office. But is it any good?

Despite its size, the CLP-360 does manage to house a 150-page cassette, a 300MHz processor with 32MB of memory and a USB connection (sadly no wi-fi or wired connection, though).

The design of the printer is pretty sparse, with just a few control buttons and power to one side, along with a lift-up flap of plastic in the output area on the top of the printer.

The text page test averaged a print speed of around 15ppm, with the initial page printed out within the first 15 seconds. The colour pages were much slower, at more sedate three pages per minute with the first being out within 30 seconds of sending the print through.

Unfortunately, the CLP-360 gave us an excessive amount of grief when printing. It refused point blank to even print, stating that the printer was offline when clearly it wasn't. When it did eventually take the data, we had frequent paper jam warnings and, for some unknown reason, blank pages fed through. We're not entirely sure what was going on, but based on our experiences here, this doesn't



▲ The Samsung CLP-360 is a neat, small and cheap colour laser



▲ But it's also the most temperamental and error prone of the group

seem like a particularly reliable make of printer.

Print quality, when it did appear, was generally okay. The text was reasonably sharp and readable. The colour prints were clear, had bright colours and a good resolution as well. In fact,

if it wasn't for the connectivity problems and the printing errors, it would be one of the better colour lasers in the group.

Costs for replacement toner vary, but one of the cheapest we found was £84.38 for a multi-pack of genuine Samsung

toners. The colour cartridges gave a page yield of 1,000 pages, with the black offering 1,500 pages. This equates to around 1.9p per page, but here lies another problem we have with this particular printer.

When we weren't having paper jam problems, the print gobbled up toner like there was no end to the stuff. Just in the tests we ran, we managed to dry up a 750-page black-and-colour pack of toner within half an hour. We suspect that if this is the case, then the 1,000-page toners aren't going to last much longer, especially if you're doing high-volume printing.

Although the Samsung CLP-360 is a small colour laser that's reasonably inexpensive and produces a good quality print, it's far too flaky and expensive to run to justify the initial cost.



Colour Laser Printers

HP Colour LaserJet Pro M252dw

DETAILS

- Price: £139
- Manufacturer: HP
- Website: goo.gl/8B2iJi
- Requirements: Windows, Windows Server, Mac OS X, Linux

With the vast range of HP printers available, it can become a little hard to track down the latest offerings from the various ranges the company has to offer. From the point of view of this group, though, the latest mid-range SOHO offering is the Colour LaserJet Pro M252dw.

This is a newly designed printer from HP, with sleek lines and an almost Apple-esque style to it. It has an 800MHz processor and 256MB of memory as standard, with a single USB port, Ethernet, 802.11 b/g/n wi-fi and a USB host port for you to stick a USB pen filled with photos into.

There's a 150-sheet paper tray at the bottom front of the printer and a 73mm flip-up colour touchscreen, where you can get to the basic settings as well as view any thumbnail images from the USB stick you've inserted. There's also access to a small collection of HP online apps.

Print speeds are generally good; the text we fed through printed at around 10ppm, with the first page being printed within 15 seconds. The colour page test managed a respectable 9ppm, with first colour page being printed within 18 seconds.

The mono print quality was very good indeed. The characters were crisp, easy to read and showed no sign of misprints or banding. The colour photos we tested were good too, although they weren't quite as bright as the Lexmark model.



▲ The HP Colour LaserJet Pro M252dw is a really good laser printer



▲ It's cheap to buy and reasonably cheap to run too

What made this printer stand out from the others, though, was just how quiet it was. The noise factor wasn't something we were paying too much attention to, with most of the other group entries producing roughly the same volume, but the HP M252dw was virtually silent in comparison.

Pricing for the multi-pack of toners, though, was quite expensive. The genuine high-yield multi-pack, consisting of 2,800-page black and 2,300-page colour, costs £215, which offers a cost per page of 2.2 pence. The standard multi-pack of 1,500-page black and 1,400-page colour costs a

cheaper £177, at 3.2p per page.

If you shop around, you could probably find a premium set for less, but we didn't unfortunately. Obviously you're better off buying the higher-yield cartridges, as the standard multi-pack will make this the most expensive printer in the group in terms of running costs.

Saying that, the print quality is good and you can easily pick the HP Colour LaserJet M252dw up for around £139, which isn't too bad. You also get a 1,500-page and 700-page yield black-and-colour cartridge in the box, which again is quite good.

There's a lot going for the HP Colour LaserJet Pro M252dw. It's a good colour laser with good quality and connectivity, and we like the top-mounted USB port too. If we could source somewhere with much cheaper cartridges, though, we'd be quite happy with this model on our desks in the foreseeable future.



Xerox Phaser 6600

DETAILS

- Price: £250
- Manufacturer: Xerox
- Website: goo.gl/4tRjVi
- Requirements: Windows, Windows Server, Mac OS X, Linux

For obvious reasons, we can't but help already help liking a printer with Phaser in its name, but can it live up to that title?

The Xerox Phaser 6600 comes in two different versions: the V/N, which doesn't have a duplexing feature, and the V/DN model that does. Beyond that, both models are similar and feature a 533MHz processor, with 256MB of memory as standard and the option to increase that to 768MB.

There's a 250-sheet output tray located at the bottom of the printer, and it comes with a USB port and Ethernet connections. Sadly, the wi-fi isn't standard but is an optional extra.

The printer itself looks okay. There's a large plastic, sloping top that's coloured blue, which meets the familiar off-beige of the main body in a kind of wave pattern. There's a simple digital readout LCD to one side of the top of the printer, with a D-Pad-like button arrangement clustered underneath. It's pretty basic, but it works, and you can get to all the necessary functions easily enough.

The print speeds were quite good here, with the text page tests fed through at 18ppm and the first page being printed in around 10 seconds. The colour pages even managed a decent 10ppm, but the first one took over 40 seconds to start once the job had been sent to the printer over the network.

The text quality was good, at least as good as the HP model



▲ The Xerox Phaser 6600 is one of the quickest colour lasers in the group



▲ But the colours were a little dull for our liking

previously. The characters were sharp and well defined and easy to read too. The colours, however, seemed a little too dull for our liking and not as vibrant as some of the examples we've already seen from the other printers in the group. In fact, although okay, we'd go so far as to say the Xerox Phaser has the worst colour print of the group.

Despite that, the cost of toner cartridge replacement wasn't too bad. The genuine four colour multi-pack of 8,000 pages of black and 6,000 pages of colour costs £393, offering 1.5p per page. The premium set of cartridges were far better, offering the same yield as the genuine cartridges but at a more agreeable £118, which comes to a great 0.5p per page.

The Xerox Phaser 6600 can be bought for around £250, which makes it the second most expensive of the group next to the Epson model. While the toner is reasonably cheap, at less than a penny a page for the premium multi-pack, and the print speeds are blisteringly fast for a laser printer, the overall quality of the colour prints does make us wonder if it's actually worth the initial expense.

Having said that, it's a sturdy printer and will no doubt suffice as a team office colour printer or a SOHO general colour laser. For better quality prints, though, look elsewhere.





HP Colour LaserJet Pro M252dw

Although it may not be the cheapest printer to run, we think the HP Colour LaserJet Pro M252dw is the most stable workgroup unit of the lot.

It's reasonably quick, has a good quality output and is easily managed. Premium toner is a must, though, and could make this one the best colour lasers for SOHO users.



Brother HL-3170CDW

We quite liked the Brother HL-3170CDW. It's reasonably cheap to run and maintain and not too expensive to buy either.

Print quality is good, and the fact that it's an LED printer may well improve the running costs over time, as well as keeping up the overall print quality.

How We Tested

Each printer was tested with a selection of 20 full pages of text and 20 full-colour photos and blocks of colours. We used all connections where possible, as well as print from cloud and apps via phones and tablets, including PCs.

	Brother HL-3170CDW	Epson AcuLaser CX17WF	Lexmark CS310n	Samsung CLP-360	HP Colour LaserJet Pro M252dw	Xerox Phaser 6600
Price	£199.98	£350	£196	£160	£139	£250
Technology	LED	Laser	Laser	Laser	Laser	Laser
Dimensions	410 x 465 x 240mm	410 x 389 x 338mm	291 x 442 x 407mm	382 x 309 x 210mm	392 x 412 x 236.2mm	430 x 488 x 384mm
Weight	18.1kg	15kg	20.1kg	9.85kg	12.2kg	25.5kg
Connectivity	USB, Ethernet, wi-fi	USB, Ethernet, wi-fi	USB, Ethernet	USB	USB, Ethernet, wi-fi	USB, Ethernet, wi-fi optional
Genuine Toner Cost (Multipack)	£148	£160	£281	£84.38	£215	£393
Premium Toner Cost (Multipack)	£84.86	£48	£185	£80.68	Not found	£118
PPP Costs Genuine	2.2 pence	2.6 pence	2.2 pence	1.9 pence	2.2 pence	1.5 pence
PPP Costs Premium	0.9 pence	0.8 pence	1.4 pence	1.8 pence	N/A	0.5 pence

Top 5

Things You Can Never Find

Well, not when you want them, anyway...

1 Chargers

If you're anything like us, you have several drawers full to bursting with chargers. You know what you should have done is label each one of them to identify what they're supposed to connect to, but instead you just chucked them together with the very real intention of doing it later. The problem, of course, is that often 'later' doesn't arrive until you actually need one of them, and then you spend hours trying each one in turn without success. What you will find, however, is loads of stuff you were looking for last week but couldn't locate.

2 The Right USB Cable

One of the great things about USB when it came out was that it standardised things. Here you had this connection technology that would work with printers, cameras, mice and anything else for that matter. Sure, you could plug it in upside and break it, but at least it was universal. Now, though, there are just too many variants of this technology, with mini-USB, micro-USB and more. And you can never seem to find the one you want. You can, of course, find plenty of the type you're not after in a particular moment. Being more organised might be a good solution, but somehow we can't see that happening.

3 Micro-SD Adapters

Many things need these tiny flash cards these days, and they often come with adaptors to make them into full-size SD cards.

Of course, the majority of the time, you don't need these adapters, so you simply put them aside 'somewhere safe'. Yet in spite of having a ton of these things lying around, they all manage to do a vanishing act the minute you actually want one. Our advice? Blu-tak them to your ceiling whenever you're not using them.

4 Certain Screws

Just like you probably have a drawer full of chargers and one full of leads, you no doubt also have a bunch of loose screws collected somewhere. Many of these will be unique within your collection, having been left over from something that you took apart and put back together. At the time, you couldn't work out what the spare screw was for, so you

put it away 'just in case'. Then when you finally work out what it does and that actually it's quite important... You guessed it: it's gone. You have our permission to scream.

5 That Website Where You Saw That Thing

Seen something on a website that made you laugh or something that proves a point? Well, you better make sure you bookmark it or save it using something like the Pocket app, because you can pretty much guarantee that if you don't, it will suddenly become more difficult to locate that Lord Lucan, most likely when you've promised to show it to someone. They'll be left thinking you probably imagined it, and you'll be left frantically Googling for it.



Can't find the right charger? Maybe one of these things is the solution (until you lose it, of course)

Is Vlogging The New Blogging?



Has video killed the blogging star? Sarah Dobbs looks into the vlogging phenomenon and tries to work out how you too can become a famous vlogger

Remember when the first internet celebrities started to cross over into mainstream culture? First there were a few MySpace musicians who signed record deals, and then there was the great blogger book deal extravaganza that kicked off in about 2006, where any blogger with more than a few readers suddenly had a book on the table in Waterstones. Now, though, it's vloggers who are starting to become properly famous.

The obvious example here is Zoe Sugg, aka Zoella. She started out as a blogger back in 2009, and soon launched a YouTube channel to go along with her fashion and beauty posts. Her cheery personality and cute videos soon attracted a following, but there was some real substance beneath the fluff, and her videos about dealing with anxiety brought her to the attention of mental health charity Mind, who made her their digital ambassador in 2013. Looking back, that might've been an early indication that Zoella had some serious reach.

Her YouTube channel continued to grow in popularity as Zoella worked with other vloggers and brands. Now, in 2015, she's published a novel, she's launched a range of her own Zoella-branded beauty products, and she sang on the Band Aid 30 single, alongside Ed Sheeran, One Direction, and Bono. She even has her own waxwork at Madame Tussauds in London. She might not be a household name to many people over 30 but, well, it's hard to deny that she's pretty damn successful.

She's far from the only one; there are plenty of other names who kick-started a media career with just a camera and an internet connection. Shane Dawson is carving out a career as a director and actor in feature films; Brittany Furlan has her own TV sketch show in production; Tanya Burr has her own makeup line and published a non-fiction book on beauty; and comedians Anthony Padilla and Ian Hecox (better known as Smosh) have their own movie and now get recognised by hysterical fans in the street. The list goes on. Online video stars are



an audience point of view, there's nothing surprising there.

The reason it hasn't taken off before now is down to a couple of technological factors. Probably the most obvious one is that internet speeds have increased dramatically over the past decade. Before broadband was so widespread, downloading a video would've been so time-consuming and used up so much bandwidth hardly anyone would've wanted to bother – and even fewer would want to try uploading videos. Now that broadband

and even superfast fibre broadband connections are pretty commonplace, it's become totally normal to stream entire movies, so five-minute vlog clips don't provide any barrier to entry whatsoever.

Another factor is that digital cameras have become much, much cheaper and better quality than they used to be, so you no longer have to be an expert to make decent-looking videos, and the other is that most people have got a basic video camera in their pocket already – you just call it your phone. Smartphones make the whole process



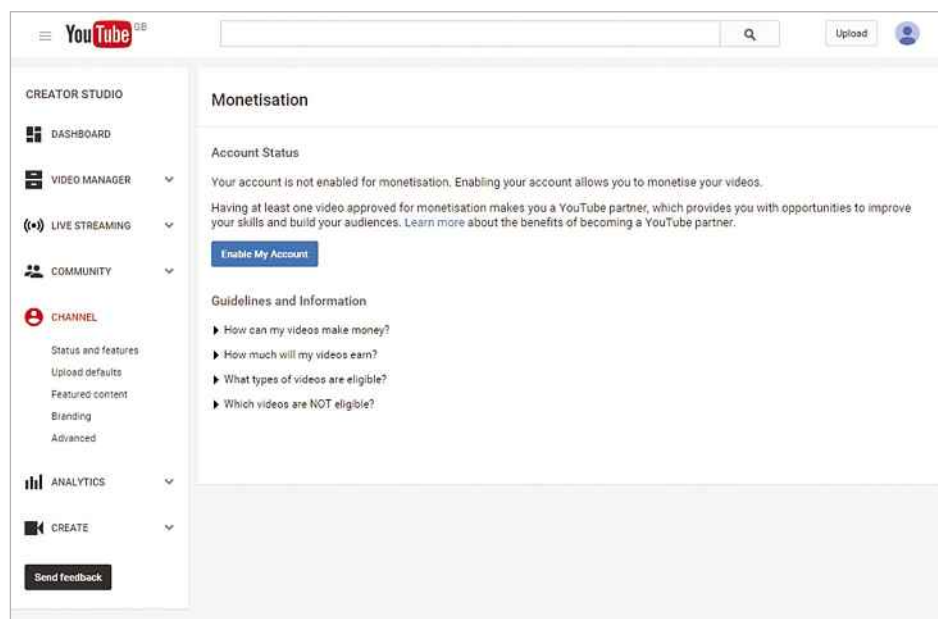
▲ Zoella's YouTube channel made her into a mega-brand who's even got her own Madame Tussauds waxwork now

more than just the new bloggers – they're the new media personalities, full stop.

So how did we get here? When did video start taking over the internet and, perhaps just as importantly, how can you get in on the action?

The Video Takeover

Asking why people want to watch videos rather than read blog posts is a bit like asking why people would want to watch a film rather than read a book. Maybe not everyone does, and maybe not all the time, but most of us would probably cop to spending more time watching telly than reading. So, from



▲ Want to make money off your videos? YouTube will walk you through the process, assuming you qualify



extremely simple: you can shoot on your phone, use an app to edit the video, and then upload it to the internet without ever having to touch a computer or learn your way around a complicated video editing suite.

Sure, most of the vloggers who've become famous off the back of their work use more advanced set ups than that – including proper lighting rigs and microphones, in some cases – but the point is that there's nothing to stop you getting started, as long as you've got a smartphone and an idea.

Where Do You Start?

Assuming that you have got those two things, where do you start if you wanna be the next Alfie Deyes or Phil Lester? The obvious answer here is 'YouTube' but, actually, it might not be as obvious as all that. While YouTube is the biggest video platform out there, if you just want to start by dipping a toe in the water – and don't want to commit to spending hours recording and editing videos – you might wanna try something quicker and simpler. Like Vine.

Vine is a smartphone app that lets you record six second-long videos. To record a video, all you have to do is hold down the button on screen. There are some basic editing functions built in, and you don't have to record six seconds continuously; you can record a series of shorter clips and then rearrange them into one blink-and-you-might-miss-it masterpiece. Six seconds doesn't sound like a lot, and it isn't, but at the same time, it's just long enough for a fantastic visual gag, or soundbite, and the ever-growing army of Viners with millions of loyal followers shows it's definitely long enough to prove you're talented.

Vine does let users import videos from other sources, so if you are a video editing whizz – or think you might want to become one – you can film and edit your stuff in other programs or on different cameras before uploading it to your account. It's a

good place to start testing material, and gauging whether anyone's interested.

Vine isn't your only option for low-commitment video-making, either. Facebook and Twitter have added video hosting capabilities to their platforms recently, so you can make and share videos with your existing friends and followers if you want. Instagram, too, will let you upload video, though there is a 15-second limit on Instagram videos.

If you do want to do longer form stuff, though, then you probably will end up back at YouTube.

The Pros And Cons Of YouTube

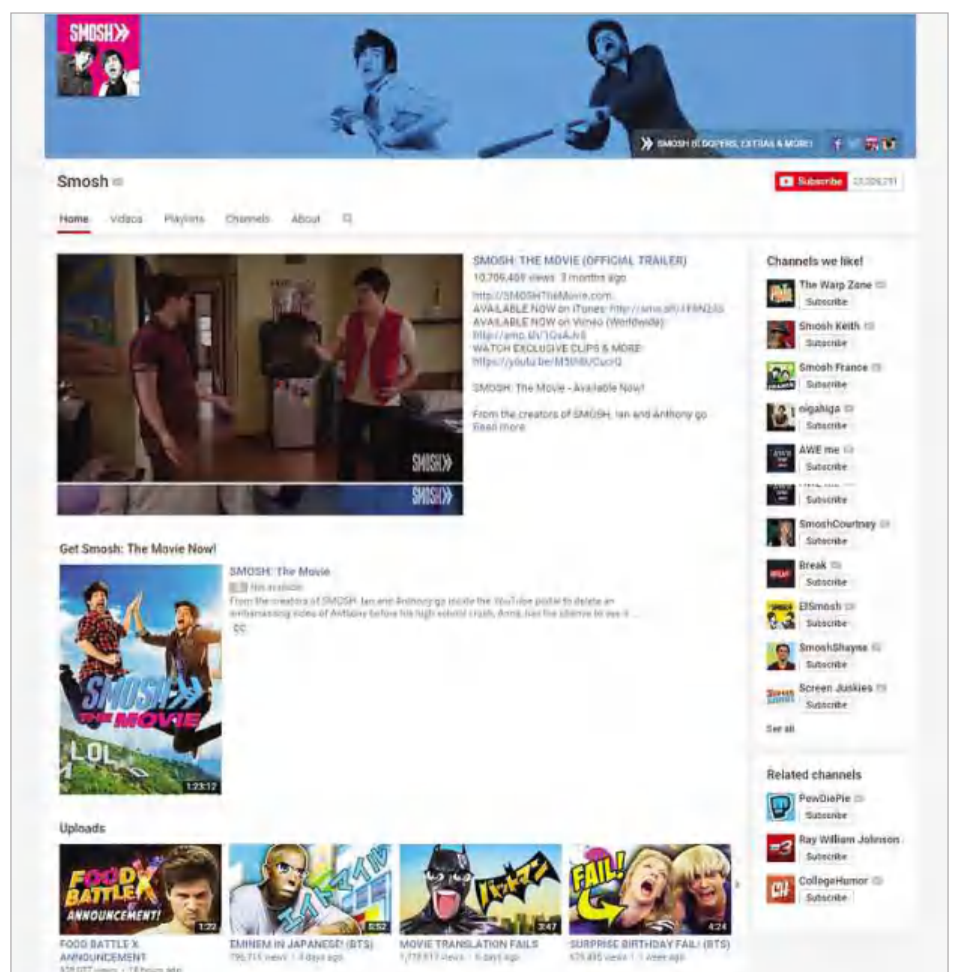
So, let's talk about YouTube. The Google-owned video sharing site is a behemoth, with more than a billion users watching millions of hours of videos every day. That means there's an audience there, if you want to get your videos in front of people's faces, but also that there's a lot of competition.

Still, YouTube isn't the biggest site for no reason. It's pretty easy to use, and if you already have a Google account, you're already signed up. Setting up a channel is simple, and it's easy to subscribe to other people's channels – which, if you want to

make a go of this vlogging thing, you're definitely going to want to do. Networking is everything, and YouTube's got a massive community ready and waiting for you to jump in.

It might not be the most welcoming community on the internet, though. YouTube commenters can be cruel. Things aren't as bad as they used to be – YouTube comments used to have a reputation for being one of the worst cesspits on the internet, full of spam and trolls – but thanks to a concerted effort on Google's behalf to link YouTube commenting identities to people's real identities, and added powers for video makers to remove crappy comments from their stuff, it's not that bad any more. But you still can't expect a warm welcome from everyone, so bear that in mind if you're planning to start uploading stuff.

Honestly, getting started with vlogging is a lot like getting started with blogging used to be, back in the early 2000s. It's just that now you need to get your head around some basic video editing skills rather than writing skills. But blogging is different now, too, than it was in the beginning. Photos are now a vital and central part of all



▲ Comedy duo Smosh also turned online success into an actual career

popular bloggers' content, so it seems like we've all become far more concerned with visuals than we once were.

This isn't the place to tell you what you should be making videos about – and if I knew how to become the next vlogging sensation I'd do it myself before writing about it! – but it might be worth taking a moment to look at a very important reason you might want to think about making YouTube videos: money.

Making Money

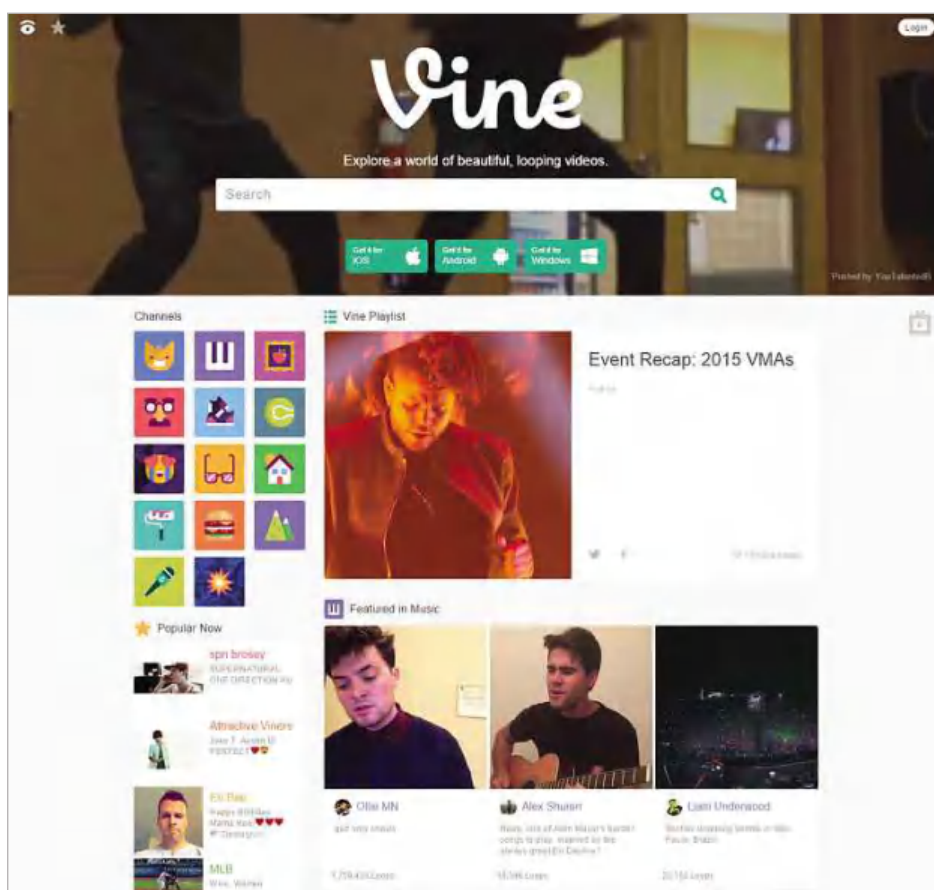
Famous vloggers can make serious bank from their YouTube views, but there are a few criteria you'll need to meet before you can start thinking about monetising your content. The first thing to be aware of is that there are certain kinds of content you can't monetise – basically, anything you don't own the copyright to, and anything violent or sexually explicit. Only advertiser-friendly videos containing stuff you've filmed and created yourself qualifies. YouTube has detailed criteria on exactly what is and isn't eligible for their partner programme, which you can find on support.google.com.

However, assuming you're like the YouTube success stories we've mentioned so far and mostly film yourself talking about or making things, then you should be eligible. The process isn't particularly arduous, but there are a lot of checks set up along the way. First you need to enable Monetisation in your account settings; then you need to click the check box for 'Monetise my video' on every video you want to stick adverts on. Then YouTube will choose to approve ads on your videos or not.

If you are approved, then you'll start to earn a percentage of advertising revenue based on how many people see and click on the ads displayed on your videos. It's not exactly revolutionary; it's basically how all online content providers earn money. And to make money, you will need an audience, which is the tricky part. Because there's so much content and so many vlogging hopefuls on YouTube, the chances of breaking in are slim. It can happen, though, and sometimes to the most unlikely content. ('Charlie bit my finger' is just one example).

What Makes A Famous Vlogger?

The barriers to becoming famous – and rich, and successful – have been knocked down in all kinds of industries. The internet has made it easier for all kinds of people to make their voices heard, which should be an unambiguously good thing. You don't need rich parents or a private school education to succeed in blogging or vlogging (or any number of other creative pursuits), because



▲ Vine is a good place to get started making videos – though you'll only have six seconds to play with

“ The future of entertainment is short-form online videos, and the future of celebrity is young, web-savvy, and probably wielding a selfie stick ”

the tools and distribution methods are open to everyone.

But... and isn't there always a but? Not everyone who can make videos will end up being able to make a living at it. Just as some of the most talented novelists won't ever be able to give up their day jobs, or the greatest artists – some of who may find their stuff gets hundreds of thousands of reblogs on Tumblr – can't raise enough money to pay their bills, what makes one vlogger, Viner or Instagrammer successful is still as mysterious as what makes one singer a chart-topper while another never gets beyond their local pub's open mic night. No matter how cheap cameras get and how simple video editing software becomes, not everyone who wants to will be able to become a successful filmmaker or even telly personality.

No End In Sight

It seems pretty certain, though, that we're going to see a lot more online video makers breaking through. The medium is here to stay, and it's only growing more popular and more profitable every day. The way we, as a society, consume media is constantly shifting, and according to YouTube's most recent stats, YouTube Mobile alone reaches more of the 18-34 demographic than any cable network in America. That's a lot of young people.

It makes sense, really. We're talking about a generation that's grown up without ever knowing a time without internet – and a demographic that can watch videos on their phones or laptops without worrying whether they're safe for work. In short, then? The future of entertainment is short-form online videos, and the future of celebrity is young, web-savvy, and probably wielding a selfie stick. [mm](#)



Do Violent Games Lead To Aggression?

It's a long-debated topic filled with controversy and debate, and recent reports have further stoked the fire. Aaron explores the touchy subject of video game violence

A recent study performed by the American Psychological Association (APA) claimed to have found what it called definitive evidence that violent videogames lead to signs of aggression in players. The study, which found its way onto the internet in August, looked at over 300 different papers dealing with the subject of violent games and their effects on players. These papers were originally published between 2005 and 2015.

The study focused on a number of gamers and tested them in a number of ways, moving from short- to long-term exposure to violent games, after which researchers deduced that the games had a very real effect on aggression levels and overall behaviour.

"The research demonstrates a consistent relation between violent videogame use and increases in aggressive behaviour, aggressive cognitions and aggressive affect and decreases in pro-social behaviour, empathy and sensitivity to aggression," said the report.

These results were called into question by a number of groups, with pro-gaming representatives and those involved in the industry voicing their concerns. It's been said that many of those involved in the study are known to be anti-gaming, with definite agendas against gaming, and that evidence and results were picked selectively to lean towards the eventual outcome.

You're probably reading this and thinking "So, what's new?" You'd be right, this is an argument that has raged for a long time, and as videogames have become more and more realistic in their depictions of violent acts, the stream of such reports and cases has only grown. What's the real truth behind this, though? Are violent games fuelling aggression and leading to some of the horrible events we've witnessed in recent years, such as Columbine, Sandy Hook and other massacres? Or is the humble videogame simply an easy target, blamed to avoid far more difficult questions?

Same Old, Same Old

A very common argument for videogames is one that's undeniably very true. That's that this kind of situation is nothing new, and videogames are just the latest target. Movies, music and even books have long been thought by some to have negative effects on people. Movies in particular have long been called into question regarding violent and distasteful content. Videogames are just the (relatively) new kid on the block, so they're easy pickings for another wave of blame.

Unlike movies, however, videogames are not one-way entertainment. Players aren't simply watching the action in a

“ Movies, music and even books have long been thought by some to have negative effects on people ”

passive manner; here they're part of the media. They're often the ones performing such actions and making such decisions. They control the outcome of events and actively indulge in the violent content, even if it is digitally, within the confines of the game. Because of this, even the most stalwart defenders of games must agree that there's a little more to the argument against violent games than movies. Watching violence is one thing; partaking in it, even in a virtual manner, is another.

The thing is, regardless of how interactive virtual violence is, it's still just that – virtual – and that's the distinction most people can make with no effort. It's a game, and no matter how realistic it may look, the violence on display isn't real, and as long as the person playing is mature and knows real from make-believe, right from wrong, there's really nothing to worry about.

Often, violence in games is also very unrealistic and over the top, even in such infamous releases as *Mortal Kombat*. In games, characters can display feats of superhuman strength and speed; they can emit fireballs from their hands, jump several feet into the air, and they can withstand the kind of punishment that would easily kill in real life. It's clearly not real, and there are more realistic avenues of violence elsewhere that don't get the same bad press but which could promote the same feelings people claim games provoke.

Sports, for one, are very real. Even staged sports entertainment, like that seen in the WWE is pretty violent, but there's nowhere near the fuss about this as there is with gaming. Again, much of this is simply watched on TV, but many sports that people and a lot of children play can be violent too. Parents think nothing of taking their kids to karate lessons, but those same parents may refrain from letting them play a fighting videogame.

Perspective

This is all about perspective and reason, these parents and others would argue. A child may go to self defence lessons for that very reason, to learn how to protect themselves, but in a videogame, there's no such reason. All they do is kill for fun, and it has no positive outcome.

This is a common argument and one of the most ill-informed. It's a clear demonstration of ignorance and unwillingness to experience such things first hand before criticising. You see, although there are a few games that blatantly focus on violence with little reason or perspective, such as the recent *Hatred*, most have plenty of story that frames the actions of the characters, and few heroes are cold-blooded killers with no remorse – just like any movie or other entertainment medium that's deemed socially acceptable.

Even games all about killing, such as those seen in the *Hitman* series, don't simply glamorise violence, and each mission and hit has a reason and back story, with targets usually being very bad individuals. This certainly doesn't mean killing is right, it never is, but it clearly shows that there's much more to the title than mindless violence for the sake of it. It's just another form of escapism and entertainment. This entertainment is also governed by a ratings system.



▲ *Grand Theft Auto* is one of the most controversial game series ever made



▲ Movies like the 80s classic *Robocop* are very violent and, like violent games, are not intended for kids

Gaming, be it violent or not, has also proven to be excellent in terms of mental and physical development, promoting problem solving, manual dexterity and a general rise in intelligence, so it's far from a waste of time, if planned out and overseen by the most important influence there is: parents.

Parental Control

By far the biggest issue for many in terms of videogame violence is the exposure of this violent content to a younger, under-age audience and the aggression it may seed. This is a very real and understandable concern. Most parents wouldn't want their children to watch a gory slasher flick or potentially traumatising horror movie, and the same applies to games.

It's perfectly reasonable for parents to find it unacceptable for their children to play games like *GTA*, *Mortal Kombat*, *Hatred* and other adult titles, and that's precisely why games are now rated, just like movies. In fact, games like the original *Mortal Kombat* were directly responsible for this rating system, and without them, we may not have such industry control over content rating.

They vary in different worldwide regions, but almost all countries now have a rating system for games, with clear distinctions between age ranges and which titles are suitable for younger players. *GTA* and its ilk have clear adult ratings, so these should obviously not be sold to or played by minors, just as 18-rated movies are not to be shown to those under that age.

It's here where a lot of the problems lie. In many stories involving violent and aggressive acts by children, stories that



▲ Few games are more violent than *Mortal Kombat*, and the original helped establish the age rating system for games



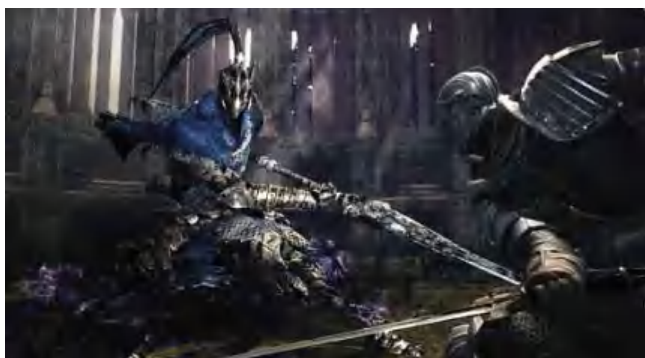
▲ It's hard to excuse games like *Hatred*, but even these are still over the top and clearly fantastical

Why So Angry?

As we've said, games can surely promote anger, which simply can't be argued against. The key is how and why this happens. Simply put, it's because games try to stop people doing what they want to do, and this kind of barrier is a very common trigger in promoting irritation and aggression, within a game or in our lives in general.

When someone plays a game, they want to win and/or proceed to the next level or along in the story. That's usually the whole point. Most games, however, take steps to prevent this, such as enemies that try to kill you, puzzles that hinder your progress and other gameplay mechanics. This is what we play the game for, to be challenged and tested, but naturally, being stopped or prevented from achieving goals is upsetting. This is what we overcome when we face any challenge, be it a game, a task at work or even playing the lottery.

By their very nature, games don't want you to win, otherwise there'd be no challenge. We play games to be challenged, so we can overcome problems and prove our skill. Without this challenge and the possible frustration that comes with it, what would be the point? You may as well simply watch a movie. So bring on the difficulty and let's embrace a bit of anger and aggression; it's a healthy outlet. Just keep it confined to the couch.



▲ Few play *Dark Souls* without getting hot under the collar, so high is the difficulty

accuse videogames of being a catalyst, the games involved are almost always adult in nature. These games should never have been played by those involved, meaning there was no parental/guardian control involved. Even if the game was directly responsible (which we're certainly not saying is true), it could have been avoided by heeding the clear age ratings on the title, just as people (should) do with movies.

Of course, it's highly possible children find a way to play such games without the parents' knowledge, meaning parental control isn't as much of an issue, but this is no different to kids secretly watching adult movies or partaking in any other activity they shouldn't really be doing. Does this mean that we shouldn't make adult movies and games? No, of course not, and the industry is doing what it can to make people aware of such content and taking steps it can to curtail its availability to those who shouldn't have it, but every child can't be watched all the time.

Mental Distinction

This is obviously an area for those with far more medical and psychological knowledge, but you don't need to be an expert to know that people who are so easily influenced by videogames



▲ Even fictional and staged sports like wrestling are pretty violent, but that doesn't make major waves these days

or any other type of depicted violence clearly have deeper rooted issues than whatever their pastimes happen to be. This is something that's often ignored, with the blame being aimed squarely at games or another form of entertainment. They're easy targets for such blame.

It takes a very distorted view of the world and an unstable mind to play a game of *GTA V* and to then go out and re-enact in-game events in the real world, and this isn't something an age rating or other censorship is going to stop. If a person is pre-disposed to commit such acts, they'll do so regardless of playing videogames or not. The seed is there, in their psyche, and any number of things could make it grow. Aggression or aggressive acts stemming from playing a game could very well be replicated in myriad of other ways. At the end of the day, the potential for aggressive behaviour is there, regardless of how it's brought out.

Yes, games could arguably contribute to the eventual manifestation of this imbalance, but no more so than other external input. A poor upbringing and personal life experiences will shape this kind of behaviour far more and contribute to the overall psychological state of an individual.

Don't Make Me Angry?

The studies we opened with looked at the increase in aggression generated by playing videogames, and while this is often linked to the horrible incidents of violence we see in the news, which more often than not overshadows any legitimate research, the general change in people's moods is a real side-effect of gaming that can't be denied. The things is, so are many other things we do each and every day – things that don't come onto the radar of researchers, the media and consumer groups.

Do games cause people to get angry or demonstrate more aggressive emotions? Yes, of course they do. Whether it's a really difficult game that causes people to yell in frustration or a competitive shooter in which fierce competition prompts

aggression, all games are a form of stimulation and will act accordingly on the player. This is similar to the aggression players feel when playing football or rugby or the feeling of euphoria one gets after exercise or winning a game. It's all in our make-up, and we're a very emotional species. Anything and everything can change our moods and cause all sorts of reactions. This doesn't make these external influences evil; they just prompt a change, that's all. Then again, there's something to be said for moderation.

The phrase, 'You can have too much of a good thing' is very true, and games are no exception. Prolonged exposure to games will have a negative effect, be it physically or mentally, so limiting time with them is important. If you're the kind of person who has a temper, then games will undoubtedly make you angry and may even lead to excessive aggression. Luckily, most of us can control this, and while we may have a bit of a tantrum, after a few minutes, you remember it's just a game and it's not all that important. If this isn't the case and you struggle to control your aggression, then maybe some help is needed.

As for a general feeling of sustained anger that may be prompted by playing violent games, then yes, some people may experience this, but again, would they also experience the same from playing sports or having a bad day at work? This is the fair question that should be asked and addressed, and simply focusing on one particular medium is short-sighted.

Raging On

The debate about violence in games and their impact on people isn't going away. As long as games continue to be one of the most prominent forms of entertainment, there will always be cause for concern in the minds of many. What we need to remember is that games don't make a person and like any other form of stimulation, they simply affect a persons' existing nature. Are you irritable and prone to anger? Games will probably make you angry. Simple. [mm](#)

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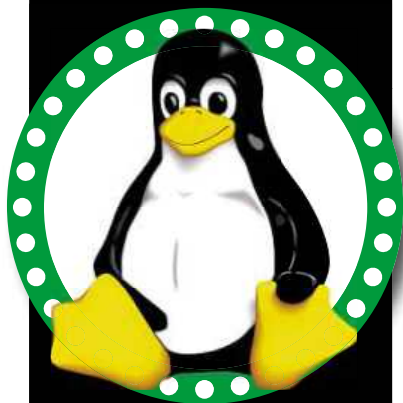


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David Hayward has been using Linux since Red Hat 2.0 in schools, businesses and at home, which either makes him very knowledgeable or a glutton for extreme punishment

Linux

NAS4free 10.2.0.2.2067

An effective NAS operating system, which keeps on improving

NAS4free is one of the range of NAS operating system based distros that offers a full range of features with an incredibly low system resource footprint and only a minor amount of effort to get up and running on the part of the user.

It uses the extremely stable FreeBSD as its base, along with a host of other technologies that when combined form one of the most capable NAS software products available.

The newest version to hit the download servers, version 10.2.0.2.2067, plays host to a number of updates and improvements, which greatly enhance an already amazing product. Firstly, the base package has been upgraded to FreeBSD 10.2 (release p7), which in itself now supports the likes of TRIM when used with ZFS on solid-state drives and an OpenSSL update to version 0.9.8y.

The WebGUI has seen some improvements with PHP 5.6.15 and now zips along neatly while still remaining functional and easy to read. And it includes more detail in a number of the admin screens (chief among them the information displayed via the Status section), along with a better laid out menu structure.

Additional to these updates, there has been support for numerous RAID controllers included with the build, the device driver for AMD APUs' on-die thermal sensors (amdttemp), the option for ZFS lz4 compression has been added to the WebGUI, and we have such components as Samba, Gzip, PHP and Netatalk updated accordingly.

There have been a few fixes from the previous version, most notably the DNS responder not starting correctly, along with brief fixes to the WebGUI and overall stability of the system as a whole.

A NAS OS For All

NAS4free represents a project that has grown considerably since it took over from the original FreeNAS code in 2011. The installation is simple enough, and thanks to the well-devised installation script, newer Linux users shouldn't have too much trouble. The embedded installation, which is by far the most popular with the users of NAS4free and which can be installed onto a USB flash pen, is just as simple. And once more, due to the well-designed installation scripts, the entire process can be complete within a number of minutes, depending on the number of drives you're including as data devices or any RAID configurations you may have need to set up.

The improved WebGUI makes adding hard drives for data, creating and formatting

partitions, creating users/groups and measuring the load on the DIY NAS server extremely easy. And thanks to the vibrant community, should you become stuck or need to figure out a particular function, then there's usually someone who is willing to help you through the process.

The real beauty here, though, lies in the fact that you can start off small, with a single PC, for example, and in time add more resources and space without the need to delve too deep into the inner workings of the system.

It's a simple, easily scalable NAS system that would suit everyone from the home through to a large enterprise organisation. The developer is very active and is constantly improving the product without detriment or added hassle to the previous version users, which all in all makes this a far superior product than that offered by off-the-shelf hardware solutions.

▼ **NAS4free: a versatile DIY NAS distro**



Christmas Treats

Some suggestions for Amiga-related Christmas gifts from Sven Harvey

Music

Back in the day, the Amiga 500 may have been known for its graphical capabilities, but as time moved on it's increasingly the audio that came from the machines that stirs the nostalgia in us.

For that reason, the first suggestion for an excellent Christmas present is the latest remix CD that has been released based on Amiga music in the form of Instant Remedy's 'Insert Disk 2'. Featuring music from *Lotus Turbo Challenge 2*, *Turrican*, *Pinball Dreams*, *Project X* and others, it's 12 tracks and 76 minutes long. Available from **Amazon.co.uk**, **Funstock.co.uk** and **Amigakit.co.uk**, it's well worth picking up. You may well find Paula Agnus Denise and CDs from the Immortal soundtrack series of interest as well at those sites.

Gaming (Amiga)

For those lucky enough to own a next generation AmigaOS 4.1 machine with a 500MHz processor or above, the latest game release from Hyperion Entertainment is now available. *Gorky 17*, which was originally slated for a release a few years ago, may have been long in the porting, but this Polish based sci-fi horror game is reportedly

well worth playing, with its mixture of turn-based combat and adventure game styles.

You'll need a fairly well-specced machine with AmigaOS 4.1 Final Edition to be able to run the game, and it's available from **Amigakit.co.uk** in the UK.

Emulator

For those without an Amiga machine who want to relive some of the gaming and perhaps other related memories, an emulator for the PC may be just the ticket. Amiga Forever is the officially licensed emulation package with legal Kickstart ROMs and Workbench images, so your PC can act like any of the Commodore Amiga models, including the much loved Amiga 500 and Amiga 1200.

The Premium Edition of Amiga Forever 2014 is a physical disc-based version of the software, and as well as the package on DVD-ROM, it includes two DVD video discs with footage from

the original Amiga launch and various other insights, and these videos play on any DVD player. The emulation package itself includes various games and other software for use within the emulated Amiga environments, of which there are already a number set up to match the major machine models released by Commodore.

Check it out and order a copy from **www.amigaforever.com**.

Book

Still available and very much recommended, *Bitmap Book's Commodore Amiga: A Visual Compendium* is over 400 pages celebrating the artwork and graphics of the games and more, which were released on the platform in the Commodore years (1985-1994.) A paperback and hardback collector's edition is available and it's well worth grabbing for someone who remembers playing games on the A500 or A1200 especially. Check it out at **Funstock.co.uk**.

New Kickstarter!

Talking of nostalgia, a certain Jon Hare, formerly of Sensible Software (the rights to which are firmly in the grasp of Codemasters) has launched a Kickstarter for his new game. Now, as is obvious, Jon worked on *Sensible Soccer* and *Sensible World Of Soccer* as well as a plethora of other titles (*Cannon Fodder*, *Wizball*, *Mega-lo-mania* etc.), but the Sensible Software team, Hare included, also produced *Microprose Soccer* on the Commodore 64, which then got ported by other teams to other formats.

Now Jon is working on his third football game franchise in the form of *Sociable Soccer*, with a new non-silly team, and you can help by joining the Kickstarter campaign. The game's target platforms are current gen (Windows PCs, Xbox One and PlayStation 4), and pledges for the game start at £12 for a limited number of early birds. Check the campaign out at **kck.st/1NsLma5**.



Sven Harvey has been our Amiga specialist for over 16 years, drawing on his 25 years retailing computer and video games and even longer writing about them

Amiga



Ian McGurren is a professional IT analyst, a semi-professional writer and a pretty amateur electronic musician. He likes gadgetry and loves making gadgets do things they were never designed to do

Mobile

What's On TV?

Ian McGurren looks at the Apple TV's best apps

The Apple TV has come of age, by which I mean it has joined not only its fellow iOS device but also the Fire TV and Android TV in stepping into the world of apps. Proper apps too, not the sort-of-apps that you get on the (albeit excellent) Roku hardware. As is normal for new hardware, apps are a bit thin on the ground, but there are still a few well worth your time.

Apps

You won't be surprised to find there are a fair few video-on-demand apps that launched with the new Apple TV, and you'll be even less surprised to find that many of those are quite niche or American-centric. But there are some for us over here, such as perennial favourite Netflix and Sky-by-wire NowTV. Both of these are every bit as good as on other platforms, although both also have to conform to the Apple TV's slightly dull layout design that mimics the overall tvOS UI. Everything is there, just moved about a bit.

Another big name to come over is something Apple TV users have wanted for ages: Plex. No more jailbreaking and messing about just to stream your own files from your own drives to your own Apple TV, as Plex works as simply and effectively as it does on any other platform, and it's free! Again, the UI has been Apple TV-ised, but just having Plex alone breaks the Apple TV out of the old versions' walled media garden.

Games

You either like or hate the idea of mobile games on a big

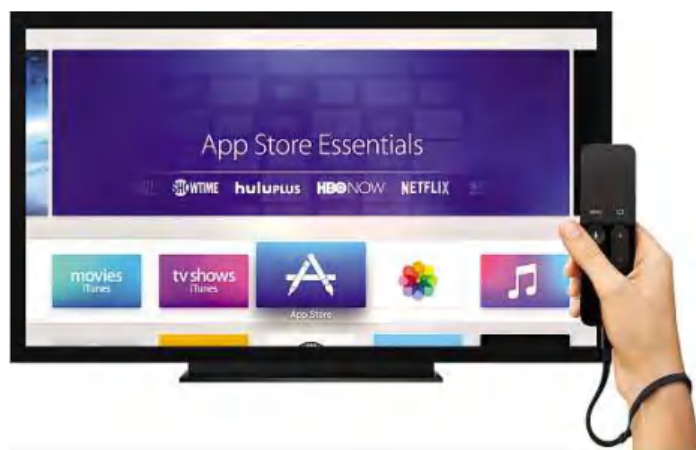
TV. Personally, I love the idea of turning mobile things into consoles, and thankfully the Apple TV does it pretty well. The games brought over from iOS that work best are those that boil things down to very basic input. *Crossy Road* relies on clicking and occasional swiping, the beautiful *Alto's Adventure* just has the clicking, and they work great. More advanced games can be a little hit-and-miss at times: *Oceanhorn* and *Lumino City* both have a very stunning looking take on point-and-click that can on occasion be difficult, as it was originally intended for touch. The same goes for the otherwise excellent *Rayman* on Apple TV too. Many of these games run with the MFi (no, not the erstwhile furniture peddlars but 'Made For i') joypads, and most would definitely benefit from using a proper controller, otherwise the games themselves are very solid.

What's Missing

If you're British (and the chances of this are high, considering you're probably reading this on real paper,

from a real newsagents), then most alarming here is the lack of on-demand video apps from terrestrial channels. No BBC iPlayer, no ITV 'hub', no All 4 and certainly no Demand 5. While many of their respective apps will push to the Apple TV from an iThingy, it isn't the same and ties up your device. Same goes for radio with the likes of Tune Inn too. The apps will come, of course, but not a single one on launch is a little disappointing.

So it's quite a slim selection, albeit with some gems that show the platform has promise. Given the conversion to tvOS is supposedly straightforward, with the main problems being down to the change in input and the hardware being that of an iPhone 6, a flood of apps isn't far away at all. Whether the Apple TV becomes a platform that gets launched along with the iPhone and iPad versions of apps or later like the Apple TV remains to be seen, given it lacks 4K and frankly is a bit of a dog to work around at present, but it certainly could throw up a few surprises, especially with games.



Whatever Happened To Matrox?

Andrew Unsworth will always have a soft spot for Matrox, but what exactly does the graphics company do now?

Looking at the graphics card market with modern eyes, you'd be forgiven for thinking that there have only ever been two main players in the graphics card market: AMD and Nvidia. The two have duelled for title of world graphics hardware champion for so long that an entire generation will have grown up knowing nothing else but a battle of two brands. It wasn't always like this, though.

The late 90s and early 2000s (still seems like yesterday) was an exciting time for PC graphics. Popular brands such as Diamond, S3, 3DFX and ATI vied for the PC enthusiast's cash with promises of ultra-smooth, heart-meltingly pretty graphics. Most of these companies made consumer-focused products, but there was one company that managed to straddle the professional and consumer markets, and that company was Matrox.

Although Matrox has never been an out-and-out gaming card company, the company's cards could hold their own when gaming back at the turn of the century. Their best application was business and multi-monitor work, though, especially video-editing.

Indeed, I wrote my first Micro Mart review on the Matrox P650 way back in 2004 (where have the years gone?). The Matrox P650 was a dual-output AGP graphics card that allowed smooth playback of video while the user manipulated the controls in Adobe Premiere Pro. It could also produce smooth, beautiful and high-resolution



visuals in *Return to Castle Wolfenstein* too, which is handy for when you wanted to clock off and play games. Sure, it wasn't intended to be a gaming card and there were better options if all you wanted to do was slap aliens, but it could certainly hold its own.

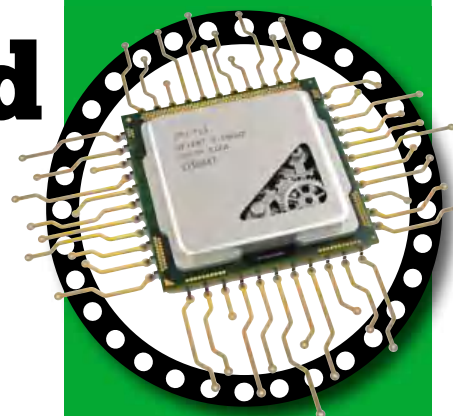
The P650 wasn't the cheapest card in Matrox's line-up in those days, but it was the entry-level card in its P-series. The daddy was most definitely the Matrox Parhelia, a high-end graphics card that allowed three-monitor gaming and professional use at a time when using two monitors was considered outlandish and something reserved for those with deep pockets. We take AMD's Eyefinity and Nvidia's Surround technology for granted now, but at the time it was a real novelty to have reliable multiple monitor support.

As the Parhelia allowed you to use three monitors at once, it was ideal for flight simulator enthusiasts as well as video editors. Again, the Parhelia wasn't a gaming card, and if all you cared about was gaming, there were other cards on the market that would have suited

you better. I always coveted the Parhelia but never got to use or own one.

Although the specs don't look particularly good now, they were decent enough for the time. The card started life with 128MB of graphics memory, which gradually increased to 256MB over the course of the card's shelf life. According to GPU Review (tinyurl.com/o959yx9), the OEM version of the 128MB Parhelia had a 200MHz clock speed and a 250MHz RAM speed. Just think, for around the same price as a Parhelia in the mid-2000s, you can now get an Nvidia GeForce GTX 970 with 4GB of RAM, a 1.1GHz GPU clock speed and a 1.24GHz memory clock speed.

As consumer graphics technology improved during the mid-to-late 2000s and as AMD and Nvidia's battle for graphics supremacy commenced, the Matrox brand all but disappeared from the lips of regular consumers. The company still exists, so what is it up to? The brand has shifted its attention away from the consumer market and towards the corporate and medical markets. Next week, we'll have a brief look at some of its gear.



Andrew Unsworth has been writing about technology for several years, he's handy with a spanner and his handshaking skills are second to none

Hardware



Ryan Lambie has loved videogames since he first stared up in awe at a *Galaxian* arcade cabinet in his local chip shop. 28 years on, Ryan writes about gaming for Micro Mart. He's still addicted to chips and still useless at *Galaxian*



This week, Ryan checks in on the progress of the new game from the creator of Braid, and looks at the changes afoot for the free-to-play Warframe...

Plug & Play

How does a lack of music affect a game's atmosphere? That's something designer Jonathan Blow's experimenting with in his latest work-in-progress, *The Witness*. Blow's previous game, you may recall, was the wonderful *Braid*, a traditional side-scrolling platform game with a unique twist: a press of a button rewind time, making each level a mind-bending temporal puzzle.

The Witness promises to be similarly challenging. It's set on a seemingly deserted island full of intricately interlocking puzzles, where solving one (essentially a 2D maze game on a panel) will lead to another, more complicated conundrum elsewhere. There's clearly a bit more to the game than this, but then, the air of mystery is all part of *The Witness*' design – which is where that lack of sound comes in, as Blow explained in his recent blog post.

"*The Witness* is a game about being perceptive: noticing subtleties in the puzzles you find, noticing details in the world around you," Blow wrote. "If we slather on a layer of music that is just arbitrarily playing, and not really coming from the world, then we're adding a layer of stuff that works against the game. It'd

be like a layer of insulation that you have to hear through in order to be more present in the world."

It's a shift from *Braid*, which used an eclectic range of music to soothing and sometimes eerie effect, but a new clip from *The Witness* (youtu.be/j4PD0skohfM) shows how effective the use of ambient sound is, too. As the camera gives a top-down view of the island, all we hear is the faint rush of a breeze, a reminder of how many modern games rely on furious volume to get our attention. Indeed, when a game is this quiet, it's almost spooky.

In place of music, Blow's revealed, we'll have some kind of voice track. In a familiar staple from modern games, the player will find recordings dotted around the island, each one giving up a little more information about its recent past.

"Lately I have been doing a lot of work on story and voice acting stuff," Blow continues. "When wandering around the island, you may find voice recordings that were placed by... well, at the outset of the game, you don't know who; and as the game goes along, there is an interesting mystery to unfold about who these people are or were."

Sure, it's a familiar concept but, given that it's coming from the mind who brought us one of the most ingenious indie games of the past few years, we're fairly sure it'll be served up with a unique or surprising twist. We'll find out for sure when *The Witness* comes out on January 26th, 2016.

Online

Designers of free-to-play games face a tricky balancing act. How do you coax players into purchasing in-game items without making the game seem cheap or unfair? Third-person shooter *Warframe* has struck this balance better than most. Since its launch in 2013, it's built up a faithful following (a reported 19m users) thanks to its fast-paced and surprisingly polished co-op action, and its pleasingly-balanced in-game economy. While you can buy skins and other items if you wish, *Warframe* also allows you to build up virtual currency by simply playing the game.

There is, however, one catch in *Warframe*: Revive Tokens. Essentially extra lives, only four Revive Tokens are dished out to players each day – if they want any more, they have to open their wallets. While players can also be revived by their team mates in



▲ Already a decently balanced free-to-play game, *Warframe's* making changes that will allow players to revive themselves without paying any money

Warframe bouts, the sheer pace of the game means you're bound to burn through your Revive Tokens sooner rather than later, particularly if you're a newcomer.

For anyone irked by this particular aspect of an otherwise solid game, there's good news: developer Digital Extremes is getting rid of it. From the 2nd December, players will be given four Revive Tokens per match, and that stock will replenish once they return to their ship. It means that we can now keep playing *Warframe* for as long as we like, even if we do get booted out of matches for clumsily walking into the line of fire too many times.

It's all part of *The Second Dream*, what *Warframe's* developer describes as the game's

biggest update of the year. It adds a cinematic quest that will reveal answers about the game's sci-fi lore, and a new PvP map – the Orokin Moonbase.

The change to *Warframe's* Revive Tokens is a response to requests from its community of players, and stands in stark contrast to the grim story we heard last week about *Payday 2*, where it's developer, Overkill, faced an online revolt after adding microtransactions into the full-priced online shooter's gameplay. It was a move that led to angry threats on message boards, furious reviews on Steam and the departure of *Payday 2's* forum moderators. For a while, Overkill remained silent, but since the last Gaming Weekly, it's

issued a statement. As you can imagine, it's quite apologetic.

"For all the distress we've caused the past few weeks, I'd just like to take the time and say that we're sorry", Overkill wrote on Steam. "We've done a lot of things right in the past, but these past few weeks we screwed up. We need to get better at many things, and we will do our best to improve as soon as possible."

Unfortunately, Overkill hasn't yet revealed how it hopes to get fans onside. It's talked about removing the stat-boosting effects of *Payday 2's* new weapon skins, but says it "cannot currently make any promises."

Warframe and *Payday 2* illustrate how updates can change a game for the better – or, on the flip-side, leave players seething.

Incoming

Remember the magnificent action/strategy game, *Worms*? Well, it's back – sort of. Courtesy of indie developer Sileni Studios, *Mayan Death Robots* offers up a remarkably similar fusillade of 2D combat, with tiny characters blowing each other to smithereens in familiar fashion. Each death robot's equipped with four kinds of attack, which range from missiles to a very strange option that lets you drop *Tetris*-esque shapes onto the landscape. It looks thoroughly enjoyable, and served up with wonderfully surreal enemies and story details. Where else can you find alien robots fighting killer snowmen in ancient Central America?

Mayan Death Robots is available from Steam now.



▲ Remember *Worms*? Then you may want to check out *Mayan Death Robots*, the fun-looking and very strange action strategy game, available on Steam now

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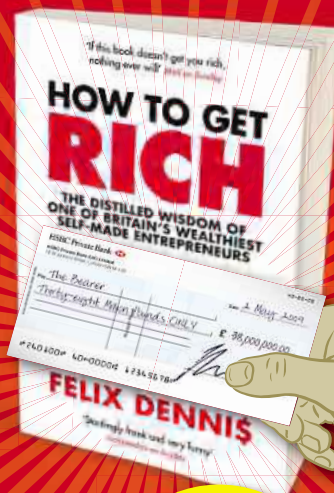
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Trying to breathe life back into an old machine? Why not submit a wanted ad to MicroMartClassifiedAdverts@gmail.com and see if any of the thousands of computer enthusiasts who read the magazine each week have what you're looking for?

Wanted: Instructions! A couple of long shots, but does anyone have instructions for the TEXET T581 BN programmable scientific calculator or the ZOOSTORM Fizzbook NL2 model [not the one available on the net - wrong model]?
Email: Alan Cox
alancox28231@gmail.com

WANTED: You bought a Corsair water cooler, with a square block. You fitted it to your Intel processor. You want to make a few pounds from the spare A.M.D. bits? Contact me!
Email: johnrpeel@gmail.com

WANTED: Gigabyte GA-Z77X-D3H motherboard wanted.
Email: johnbeiry@gmail.com

WANTED: PC Tower case (beige colour if possible) to rehome an Amiga A1200 vintage computer. The Amiga motherboard is H 410mm x L 190mm (H 16" x L 7.5"). PSU not an issue but if available 250 watt more than enough.
Tel: Bill (07742) 061569 or (02641) 769503.

WANTED: 3G dongle for Archos 80 G9 tablet.
Email: alancox28231@gmail.com

WANTED: Fractal Design Define XL full tower case. R1 (original version) in black.
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Email: mm@tectron.co.uk

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SOFTWARE WANTED

Wanted: PictureToExe software, for making picture shows.

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Wanted: Quicken 2001. I desperately require a copy of QUICKEN 2001, UK Edition. I need to reinstall the program but have lost my original installation CD.
Email: david.maddams@icloud.com

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- Keep copies of all correspondence
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Code With AI2

QR code Scanner

Build an Android QR code scanning app with David Briddock

Over the last few issues we've used web services to plot GPS geo-location coordinates on a map and access stock market information. This time we're going to build a QR code scanner that decodes the barcode information and offers single-click access to an encoded web page.

Remember, all you'll need to play along is a Windows/Mac/Linux PC, web browser and Google account. You'll need access to an Android smartphone or tablet to test this app.

What We'll Learn

QR codes are those square blocks you often see in newspapers, magazines and on websites. This two-dimensional barcode typically encodes a web address but can actually contain thousands of characters of textual information.

This week, we'll introduce the BarcodeScanner component, which can capture a QR code image and decode the information.

In addition, we'll initiate an internal Android activity that takes a decoded URL address and opens up the web browser to view the page.

Starting AI2

In your browser, navigate to the AI2 home page (ai2.appinventor.mit.edu) and sign in with your Google account.

We need a new project, so in the Projects menu select the 'Start new project' option and give it a meaningful name, such as 'MMBarcode'.

Screen Properties

We're automatically taken to the Designer View, where there's already a component

called Screen1. All the other components will be dragged and dropped onto this screen.

In the right-hand Properties panel, ensure the AppName is set to 'MMBarcode', then set the Title to 'MM QR code Scanner' and the ScreenOrientation to 'Portrait'.

Now we'll add some screen components.

Screen Components

First we need a button to start up the barcode scanner. In the left-hand component Palette open the User Interface group, grab a Button and drop it into the Screen1 area in the Viewer panel.

“ The BarcodeScanner component can capture a QR code image and decode the information ”

With this button selected, rename it to 'ScanButton', then in the Properties panel set the FontSize to 24.0 and the Text to 'Scan QR code'.

We'll use a label to display the decoded text. Back in the User Interface group, grab a Label and drop it underneath the ScanButton. Rename it to 'InfoLabel', then in the Properties panel set the FontSize to 20.0, the Height to the 'Fill Parent...' option, the TextAlignment to 'center' and the Text to '?'.

We'll also need a button to trigger a web page view activity.

Once again, open the User Interface group, grab a Button and drop it at the

bottom of the Screen1 area, below the InfoLabel. Rename it to 'WebButton', then in the Properties panel, set the FontSize to 24.0 and the Text to 'Goto Web Page'. For now we'll also disable this button by unselecting the Enabled checkbox.

Non-visible Components

Finally we need a couple of non-visible components.

The first is a BarcodeScanner component, which can be found in the Sensors group. Grab one and drop it into the Screen1 area. Then in the Properties panel ensure the UseExternalScanner checkbox is unselected.

The second is an ActivityStarter component, this time from the Connectivity group. Grab one and drop it into the Screen1 area. Now in the Properties panel set the Action value to 'android.intent.action.VIEW' (check your typing carefully here).

Notice that BarcodeScanner1 and ActivityStarter1 appear in a Non-visible Components area underneath the screen as well as in the Components panel.

Scan Button Click

It's time to start coding, so click on the Blocks View button located on the green bar.

First we'll handle the click event generated from the ScanButton. Here, all we need to do is kick off a barcode scanning activity.

In the Blocks panel select the ScanButton component, grab a brown 'when ScanButton.Click' block and drop it onto the Viewer panel's coding area.

Back in the Blocks panel, select BarcodeScanner1, grab a purple 'call BarcodeScanner1.Scan' block and snap it into place inside the brown block.

Scan Done Event

When the scanner has captured a QR code image and decoded the information, a new event is generated. To capture this event, select BarcodeScanner1, grab a brown 'when BarcodeScanner1.Scan' block and drop it into the coding area. Inside, we'll set the InfoLabel text contents and enable the WebButton.

From the InfoLabel component, grab a green 'set InfoLabel.Text to' block and snap it inside. Hover over the outer brown block's attribute 'result', grab the orange 'get result' block and snap it onto the end of the green block.

From the WebButton component grab a green 'set WebButton.Enabled to' block and snap it underneath the previous green block. Now grab a light green 'true' block from the Logic group and snap it onto the end.

Web Button Click Event

Lastly, we'll handle the click event generated from the WebButton. This code kicks off an activity that launches the device's web browser with a specific URL.

Select the WebButton component, grab a brown 'when WebButton.Click' block and drop it onto the coding area.

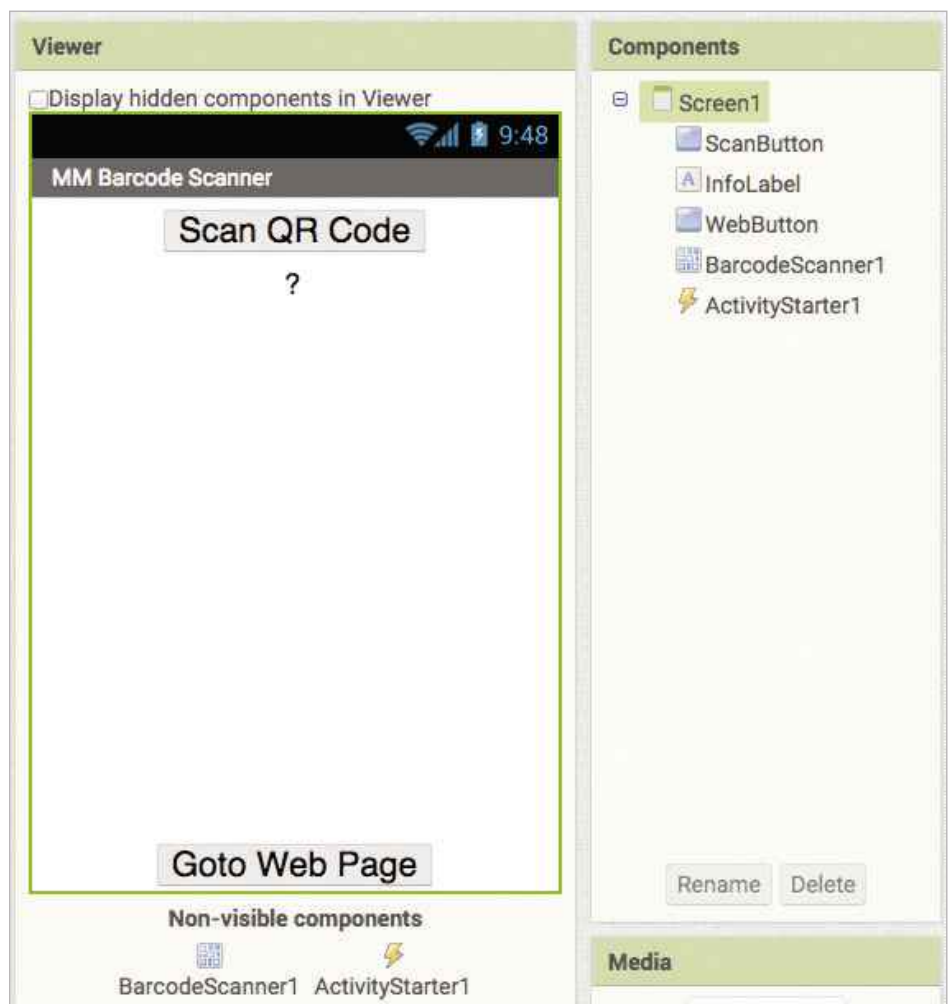
Now select the ActivityStarter1 component, grab a green 'set ActivityStarter1.DataUri to' block and snap it inside the brown block. The value is set with a light green InfoLabel.Text block, which was of course set by our previous 'when BarcodeScanner1.Scan' event code.

Finally, we'll start the activity with a single block. Select the ActivityStarter1 component, grab a purple 'call ActivityStarter1.StartActivity' block and snap it directly underneath the previous green block.

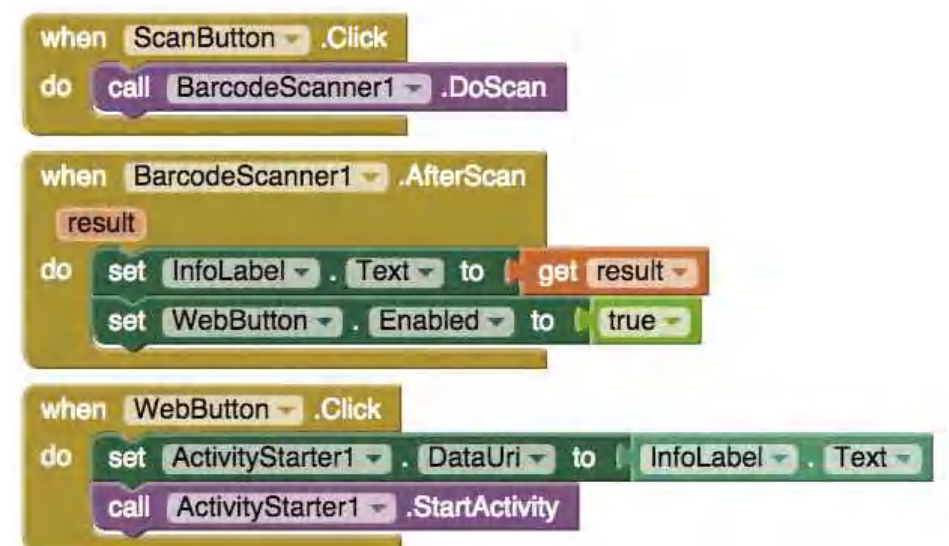
Testing

And that's the coding done. Ensure the warning and error counts in the bottom-left corner are both zero, and carefully check your code against the Blocks View image.

Test this app using the AI Companion App installed on an Android device (as discussed earlier in the series). And this app needs access to the web, so ensure the Android device is connected to the internet.



▲ AI2 designer view



▲ AI2 blocks view

As mentioned earlier, there are plenty of QR codes to be found these days, but if you'd like to generate your own, there are a number of dedicated web services that help, such as www.qr-code-generator.com.

Next Time

Next time, we'll wrap up this series by discovering example and community apps, then see how to submit an app to the Google Play store. [mm](#)

ASK AARON



Meet Aaron Birch. He's here to help you with any general upgrading, software and system building problems. He's got advice aplenty and you're very much welcome to it!

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Dennis Publishing
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Contact Aaron by email at:
aaron@micromart.co.uk

Please try to keep your queries brief and limit them to just one question per letter, simply so we can squeeze in as many as we can each week. Please include relevant technical information too.

Aaron

Speed up

Thanks for responding to my query (Slo-Mo Refurb, issue 1387). Initially, I was a bit disappointed with the advice offered, having spent considerable time streamlining every aspect of the computer, such as disabling services/disk cleanup/msconfig settings and various registry tweaks. A substantial degree of optimisations, most of which have been gleaned from this publication over the years!

However, I thought I'd remove Rapport and see if that helped. I've never had issues with it before, and since most banks/building societies recommend using it, I didn't hold out much hope – I knew this installation was legit! But lo and behold, the issues have vanished, task manager is now showing about 3% CPU utilisation most of the time, rather than the aforementioned 50-100% when idle.

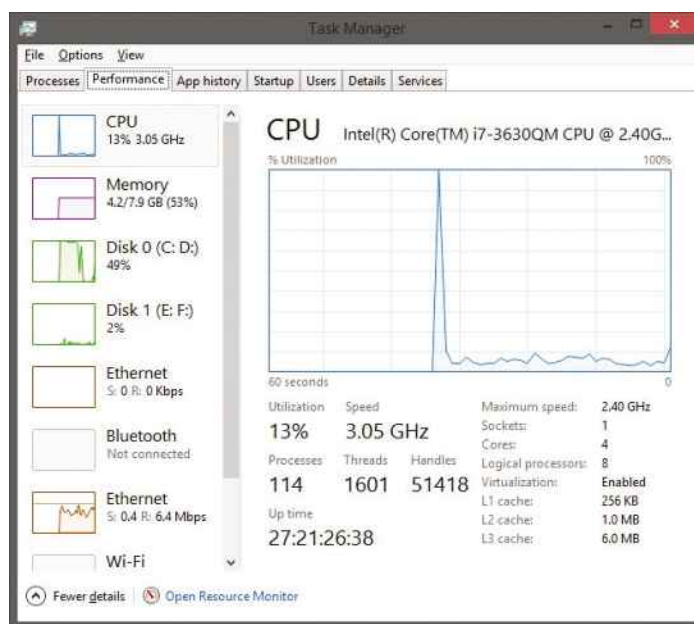
Tom

I'm glad you were able to get your system's performance sorted. Rapport is usually no problem, but there are instances where it can cause problems, and this is one of those.

I'm sorry some of my advice wasn't as useful, as you'd already tried it and were clearly on top of your system maintenance. However, with no prior knowledge of your procedures and abilities, I and the rest of the team at Micro Mart can only suggest as much as we can when answering queries, in order to try to cover all potential possibilities. We're very aware that our readership is a very talented lot and that a lot of you have more than advanced skills

in computing, but to provide as much help as possible, we do have to cater for users of all abilities. Although we obviously focus on answering the questions of the sender, we're also aware that other readers may also have the same or similar problems, so giving as much advice as possible is always a goal.

▼ Various services and processes, good and bad, have been known to cause performance problems



Need for speed?

I have a computer system, which I built at the end of 2011, to the following spec:

- i5 2500K
- Asrock Fatal1ty Pro P67 motherboard
- Radeon 6770 GPU
- 16GB Kingston HyperX RAM
- Corsair CX600 PSU
- Windows 7 Ultimate 64-bit

When I benchmarked this system, it gave a score on Performance Test 8 of 3,859. The high scores on their website seem to be only double this for systems costing upwards of £1,00.

My question is: is it worth upgrading this system or do you believe it has another couple of years left? Would it be worth just upgrading to a Gigabyte Windforce GTX950 or 960, or even trying to overclock the system (which I have not done before).

I am primarily interested in using my PC for photographic editing.

Graydon

Looking at the specification of your system, I'd say for your planned use of photo editing, there's not a great need to spend more money, as for the most part it's not too bad. Your GPU is fine, and you have plenty of RAM. The only real change I may consider would be to upgrade your CPU to an i7, as you'll notice a big performance increase if you climb from the mid-range i5. An i7 will not only give you better performance in apps like Photoshop, but it'll grant an overall boost to your system, and it will beef up that benchmark score. However, I wouldn't worry too much about benchmarks.

At the time of writing, the highest rating for Performance Test is 8909.0, and that's using an i7-5960X running at 3GHz on an Asus

Rampage V Extreme with 16.3GB RAM and a GeForce GTX 980. Clearly, this is a powerful gaming system, not one aimed solely at image editing.

Benchmarking is always useful to gauge a system's overall performance, but for the most part, it's mainly for gaming and other system-intensive tasks. Image editing can certainly take its toll, but generally you don't need as much power or expense, so you can save money.

Of course, if your PC is currently underperforming in your opinion, that may not be how you see it, and if you're after more speed or you also indulge in some gaming, then an upgrade or two may be worth it.

Overclocking is always a good idea if you know how and don't mind a bit of tinkering. It can give your PC a boost for free, and by playing around with your existing system, you may well be able to achieve your goal while leaving your wallet in your pocket.

Your motherboard (which actually boasts better performance for Photoshop in the feature blurb), has ASRock's Fatality F-Stream tuning software built in, so you'll be able to use this to do some overclocking, which should be easy to handle and may give you the performance boost you need. Just remember the number one rule for overclocking: take it slowly. Increase voltages and speeds by small increments, and test out changes before going any further. Rushing can jump you head first into an unstable system.

► **High benchmark scores are great but not that important for many users**

Top PassMark Rating

8909.0

Position	Score	BL#	CPU Type	CPU speed (MHz)	#Phys. CPUs	OS	Motherboard	RAM	Video card	Date uploaded
1	8909.0	358385	Intel Core i7-5960X @ 3.00GHz	4673	1	Windows 7 Ultimate Edition Service Pack 1 build 7601 (64-bit)	ASUSTeK COMPUTER INC. RAMPAGE V EXTREME	16.3 GB	GeForce GTX 980	2015-01-30 19:07:59
2	8794.2	343018	Intel Core i7-5960X @ 3.00GHz	3765	1	Windows 8.1 build 9600 (64-bit)	ASUSTeK COMPUTER INC. RAMPAGE V EXTREME	16.3 GB	GeForce GTX 970	2015-01-02 14:18:14
3	8463.8	446567	Intel Core i7-5960X @ 3.00GHz	3751	1	Windows 7 Professional Edition Service Pack 1 build 7601 (64-bit)	ASUSTeK COMPUTER INC. RAMPAGE V EXTREME	32.6 GB	GeForce GTX TITAN X	2015-07-25 15:39:26
4	8364.5	342289	Intel Core i7-5960X @ 3.00GHz	3750	1	Windows 8.1 build 9600 (64-bit)	ASUSTeK COMPUTER INC. RAMPAGE V EXTREME	16.3 GB	GeForce GTX 970	2015-01-01 09:01:07
5	8324.1	341926	Intel Core i7-5960X @ 3.00GHz	3750	1	Windows 8.1 build 9600 (64-bit)	ASUSTeK COMPUTER INC. RAMPAGE V EXTREME	16.3 GB	GeForce GTX 970	2014-12-31 14:35:16
6	8287.6	488773	Intel Core i7-5960X @ 3.00GHz	3749	1	Windows 10 build 10240 (64-bit)	ASRock X99 Extreme4/3.1	16.3 GB	GeForce GTX 970	2015-10-13 19:34:16
7	8220.4	448552	Intel Core i7-6700K @ 4.00GHz	5062	1	Windows 7 Professional Edition Service Pack 1 build 7601 (64-bit)	ASUSTeK COMPUTER INC. MAXIMUS VIII GENE	8.1 GB	GeForce GTX 980	2015-07-29 21:36:04
8	8214.0	510372	Intel Core i7-5820K @ 3.30GHz	3301	1	Windows 10 Professional Edition build 10586 (64-bit)	ASUSTeK COMPUTER INC. RAMPAGE V EXTREME	32.6 GB	GeForce GTX 980 Ti	2015-11-20 11:47:50
9	8208.7	51320	Intel Core i7-5960X @ 3.30GHz	3367	1	Windows 7 Ultimate Edition Service Pack 1 build 7601 (64-bit)	ASUSTeK COMPUTER INC. RAMPAGE IV EXTREME	65.5 GB	GeForce GTX 680	2013-02-18 03:00:43
10	8168.5	341408	Intel Core i7-5960X @ 3.00GHz	3751	1	Windows 8.1 build 9600 (64-bit)	ASUSTeK COMPUTER INC. RAMPAGE V EXTREME	16.3 GB	GeForce GTX 970	2014-12-30 16:30:57
11	8149.9	204752	Intel Core i7-3930K @ 3.20GHz	3281	1	Windows 7 Ultimate Edition build 7600 (64-bit)	MSI X79A-GD45 Plus (MS-7760)	32.7 GB	GeForce GTX 780 Ti	2014-02-23 17:13:43

Missing Files

I'd like to update the status of my query regarding issue 1384 and the comment by Graham in issue 1386. My Windows 7 system runs office 2007 and Windows Live for email, not Outlook. The Windows 10 machine runs Office 2010 with Windows Live for email. However, the problem has not reoccurred, so I have put it down to the link in that email only.

I have now encountered another problem with the Windows 7 system I'd like to request your help with. When I open Office and try to open a saved file, it does not appear to be in the list, but if I open Explorer, the full list of files are there and I'm able to open the files into Office. Any thoughts on this would be helpful.

Harold

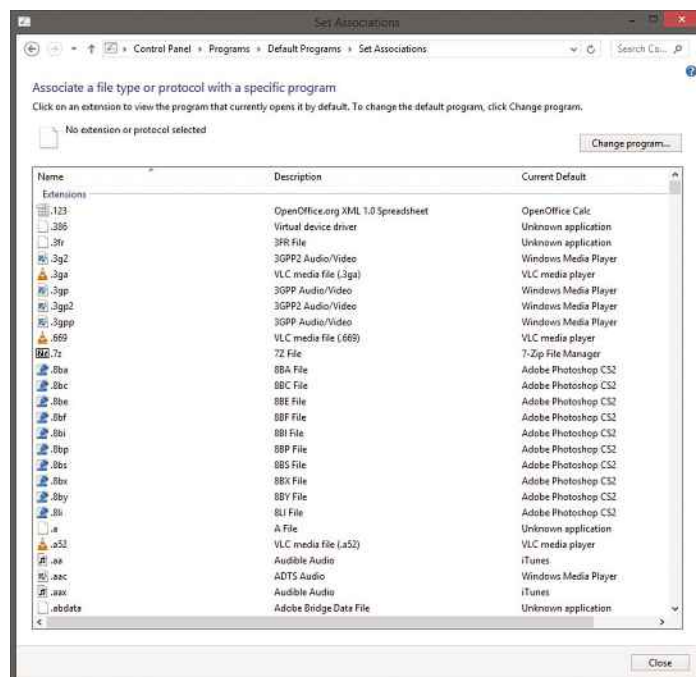
My first thought here involves a problem with file associations on your system, a problem that's been reported with other versions of Office. Basically, for various reasons, including the installation of compatibility packs, file associations have been wiped or otherwise corrupted, meaning Office doesn't know what files it can open. In some instances, it opens the Save As dialogue box instead of open, prompting the same behaviour.

To fix this, all you need to do is specify the file associations again. To do this, locate a file, such as Word document or Excel spreadsheet, and right-click it. Select the Open With option and then click 'Select a program from a list', then click OK.

Locate the program you want to open the document with, such as Word, Excel or Powerpoint, and select the check box 'Always use the selected program to open this kind of file' and click OK. This will reset the file association, thus restoring Office's ability to see these files. You should now be able to select them from within the program once again.

You can also do this from Control Panel by going to Control Panel > Programs > Default Programs > Set Associations. Here you'll see the full list of file types, and can set up file associations.

▼ **Missing file associations can cause problems, and some programs will experience difficulties when trying to open items**



ASK JASON



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jason@micromart.co.uk

While we try to cover as many questions as we can, we regret that Jason cannot answer your questions personally, but he'll cover as many as he possibly can each week. Please ask one question per letter and remember to include the full specification of your computer, including its operating system.

Jason

Mac Flak?

My neighbour had a MacBook with a failed hard drive (the result of a drop). My knowledge of Apple's gear was nil, but I said I'd have a look, and sure enough, I soon got it repaired. But when I came to return it, my neighbour said she'd gone out and bought a Windows 10 machine!

Anyway, she said she'd pay me as agreed or I could just take the MacBook. I've taken the MacBook. I thought it would be fun to increase my Apple knowledge, and so it's proving. However, I've started doing some work on it (invoicing, letters, and so on), and whilst there's a backspace key (which deletes characters **before** the cursor), I can't find a delete key (which would delete characters **after** the cursor). Is this right? Is such a useful key simply not there?

K Heron, Gmail

Aha! Another Mac query. I've been getting a few of those, and nowadays I'm actually equipped to answer them. Well, up to a point. As I've mentioned a few times recently (sorry to be a bore), my business partner forces me to use a Mac for my eBay duties. This old dog is learning new tricks. I'm talking about me, not my business partner. He's incapable of learning anything.

Missing In Action

I've just upgraded to Windows 10, and I'm trying to move the page file from my SSD to my HDD. However, the HDD has vanished. It's present in the PC's BIOS but not in either File Explorer or Disk Management. What's happened? Where's all my data? The drive worked fine under Windows 7. The PC's specs are listed below:

- CPU: Phenom II X2 B55 (3GHz, dual-core)
- Motherboard: Asus M4A785TD-M Evo (Socket AM3)
- SSD: 250GB Samsung 850 Evo
- HDD: 1TB Western Digital
- Other drives: optical; memory stick

Francis Kinsler, Gmail

You're not alone here, Francis. Many people are seeing hard drives vanish when upgrading to Windows 10. Mind you, it's large drives that are usually affected – 2TB and above – so I'm surprised your 1TB unit's been caught in the net.

I think the situation arises if a large drive has been partitioned using the traditional MBR scheme. Windows 10 gets confused – it prefers the modern GPT scheme. Verified information is scarce, but this possibly only happens when using a motherboard that has a BIOS and not a UEFI. Your Asus is such a board (courtesy of its age).

There's no need to panic. Your data is safe. It's not lost or damaged. I've read that Windows 10's enormous November update makes missing drives magically appear again, but I can't confirm this. The update was released on 12th November (and pulled

*Anyway, you're right. There's no delete key. To delete, you need to press the Fn key (function) and the backspace key. You'd reasonably think it would be the Cmd key (command), as that's what's used in the shortcuts for cut (X), copy (C), paste (V), and the like. But no. Heaven alone knows why there's no dedicated delete key to begin with. PCs have this key. Oh yes. Put that in your SuperDrive and smoke it, Mac lovers!**

** Calm down. I'm actually ambivalent about these things. If the tool does the job, I'm happy – Windows, OS X, Linux. Well, maybe not Linux...*

▼ *They say that once you go Mac, you never go back. As there's no delete key, they may have a point!*



between the 21st and 23rd because of a privacy bug), but it can only be installed by users who've been running Windows 10 for more than 30 days (as it wipes out the option to roll back to the previous OS). If necessary, sit tight.

If you don't want to wait, or if the update doesn't help, your best bet is to hook your HDD up to someone else's PC – a PC not running Windows 10. The drive should be visible again and you'll be able to back up the data. Afterwards, repartition the drive under the GPT scheme, copy back your data, and pop the drive back in its proper home.

Now, this is something of a brute-force solution. I'm sure there's an in-place workaround, some way to access the HDD within Windows 10 and 'unlock' it. If that interests you, Francis, cast your eyes over the following thread on Microsoft's community forums: <http://goo.gl/9TZLBO>. You'll find a few tips and tools mentioned there. I suspect my brute-force method will give you a much milder headache, however.

▼ *Can't find one of your hard drives? If you've just upgraded to Windows 10, you may not be alone!*



Feeling Blu

Here's another Windows 10 query, this time about the world-conquering (so Microsoft hopes) Mobile variant...

From the week of Black Friday deals at Amazon, I've bought a BLU Win HD LTE smartphone. The normal price was around £85, I think, but I got it for £49.99. I read a few reviews before jumping in, and they were right – it's a great little thing (not so little, actually). I'm unsure if you'll have heard of this model, so the details are as follows.

- CPU: 1.2GHz quad-core Cortex-A53 (Snapdragon 410, 64-bit)
- RAM: 1GB
- Storage: 8GB (plus microSD slot)
- Display: 5" 1,080 × 720 (LCD IPS)
- GPU: Adreno 306
- Cameras: 8MP main (with LED flash); 2MP selfie
- Connectivity: 4G LTE (dual-SIM); Wi-Fi 802.11n; Bluetooth v4.0; GPS; FM radio
- Sensors: accelerometer; gyroscope; proximity sensor; compass
- OS: Windows Phone 8.1

Now, I bought this phone partly because the advertising states it can be updated to Windows 10 Mobile. However, when I select the update option in the settings, I get this: 'Your phone is up to date.' Do I have to connect the phone

Bits And PCs

This week I have been mostly...

...reading all about the new £4 (yes, £4!) Raspberry Pi Zero (see goo.gl/oLznoE).

...playing *Jetpac* (from the ZX Spectrum) on the Xbox One's *Rare Replay* compendium (I'm much better at it now than I ever was back in the day).

...watching video tutorials in Udemy's The Complete Android Developer Course (see goo.gl/BmeBjP – it cost me just, £9 but the price has probably gone up by the time you're reading this).

...listening to the nice people at Lenovo (Lenogo?) tell me that, after nearly five weeks of delays, they can't actually fix my lad's Y70-70 Touch gaming laptop and will have to leave him high-and-dry with just a refund (which hasn't arrived).

...counting down the days till I can open the first window on my Lego Advent calendar (follow on Facebook as I unfold this year's Legoland tale of crimes, craziness and camaraderie).

to a PC and download the update direct from Microsoft?

Keith, Leicestershire

You bagged a bargain there, Keith. BLU's Win HD LTE is a lovely handset even at its usual price of £79.99–£99.99, never mind £49.99. The company name is a bit odd – it stands for Bold Like Us. It's a US outfit, though the products are made in China, of course. The HD LTE and JR LTE (smaller and cheaper) are the first models to be officially marketed in Europe, as up till now BLU has focused on South America, where it holds substantial market share.

Regarding Windows 10 Mobile, I think for now you'll be stuck on Windows Phone 8.1. The new OS launches in the UK alongside Microsoft's Lumia 950 and 950 XL, slated for 3rd December (the day this issue hits the shelves). Yes, BLU has committed itself to an update, but no timeframe has been announced. It'll take time to ready the OS for the specific hardware, and then there'll be testing to be done. The update will come from BLU, not from Microsoft. Plucking a date out of the air, I'd say mid-March, based on nothing whatsoever. You'll have to be patient!



▲ Microsoft isn't *quite* the only name in town when it comes to Windows phones



▲ No-one knows how long some Windows Phone 8.1 users will have to wait for promised Windows 10 Mobile updates

Crowdfunding Corner

The need to charge your hardware up is one of the most universal modern inconveniences you can encounter, so here are two projects that both aim, in their own way, to make it a little easier

AnyLink

Charging from a battery pack is fine if you have the space to carry one and the foresight to charge it, but what if you don't? The AnyLink USB cable might be the thing you need. It allows you to turn your existing devices into USB batteries, thanks to a convertible interface that allows you to draw power from any USB, mini-USB, USB-C or Lightning port.

This means you can charge your phone from a USB socket, a laptop or even another phone. It also works as a normal charge/data cable, so you'll never need more than one cable with you, regardless of what it is you want to do with it.

The cables are available in two colours – Gold and Space Grey – and a cable with shipping to the UK costs \$33 (£22) in total. You can save a couple of pounds if the early bird offers are still there, but at this point they'll be gone by the time you read this – it's that popular! Devices are intended to ship in February 2016, and the project has already beaten its \$10,000 target twice over in a single day, so we don't anticipate any problems with it being successful, at least!

URL: kck.st/1Yuowqi

Funding Ends: Saturday, 26th December 2015

USBeast

USB battery packs tend to have very limited lifespans when it comes to recharging your phone or tablet. If you're going on an extended trip or have multiple devices that need charging, it can be a huge inconvenience. For those of you that want a larger battery pack, the USBeast allows you to make one by converting an existing 4AH power-tool battery into a USB charge pack with two ports.

Doing this means you can charge a single iPhone six times over before needing to recharge your pack, and share it around without worrying that your own phone might be left powerless. The charging speed is four times faster than a standard USB port at 2.1 amps (where devices support it), so it's not just got a bigger storage capacity, it's also quicker than most chargers.

At time of writing, you can still get them on an early bird deal of \$32 all in (£21), with versions available for a large variety of battery brands and interfaces. If you miss that deal, you only have to pay \$37 all in, which is still a very reasonable £25. The project only just launched as we're writing this, and it's already a quarter of the way to its target, so we expect an early success. The USBeast devices will ship in February 2016.

URL: kck.st/1QIIXQ0

Funding Ends: Tuesday, 5th January 2016



Disclaimer: Images shown may be prototypes and Micro Mart does not formally endorse or guarantee any of the projects listed. Back them at your own risk!

App Of The Week

Bitdefender Clueful

David Hayward looks at a fantastic app that measures your security

Privacy on mobile devices is forever in the news these days. If it's not some hacker seeking a way to get hold of your valuable mobile data and contacts, it's the Illuminati tracking your whereabouts and logging every single thing you ever do.

The amount of data held on a single person is quite revealing and subsequently quite shocking, when you consider just how much a single app knows about your lifestyle, travel and other habits.

The current number of mobile apps that report back your whereabouts and activity don't help either. In many respects, just owning a smart device is an instant invasion of your privacy. If only we knew what these apps were up to.

Become Clueful

Bitdefender may just have the solution for you. Clueful is a handy application that shows

how your currently installed apps use and, in many cases, abuse your personal information.

It's a handy app to have in these modern times, that's for sure, and it can reveal some startling background information on what's going on with regards to your privacy while using a smart device.

It basically provides clues regarding your Android or iOS app activity, what security risks they pose and which are tracking you, finding out your identity or gathering some kind of analytics in order to monitor you and your habits. From there it then goes forth and checks the apps against the Bitdefender cloud database and presents you with a security or privacy score based on which apps are leaking information about you or which have more access to your device than you thought possible.

The final score is out of 100, so a low score would suggest that every world government

Features At A Glance

- Can reveal tracking, monitoring and advertising apps for free.
- Can show which apps are leaking your information.
- Can display what permissions each installed app has.
- Can monitor which apps drain your battery through background services.

and their collective agencies know what you're up to and where you are. Based on the detailed explanation provided about the app and what it does with your information, you can securely remove the app through Clueful.

Nice And Simple

Clueful is an easy-to-use app. It's free, so just install it, then allow it to scan your device for the installed intrusive apps and return with your privacy score.

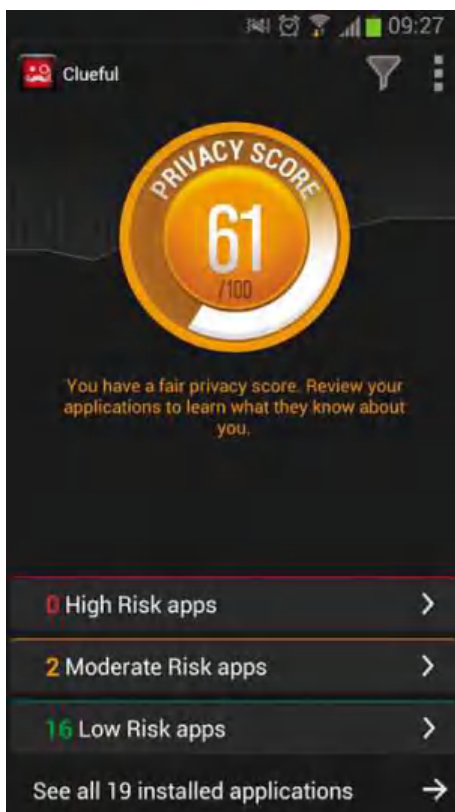
Each app is then given a risk classification, and you can delve deeper into an offending item to nail down what exactly it does and whether or not you can remove it. The information contained within is surprising; Polaris Office was a shocker, having permission to be able to send messages or make calls without me even knowing. And we don't want to even start on what the Facebook app is capable of doing behind your back.

Are You Safe?

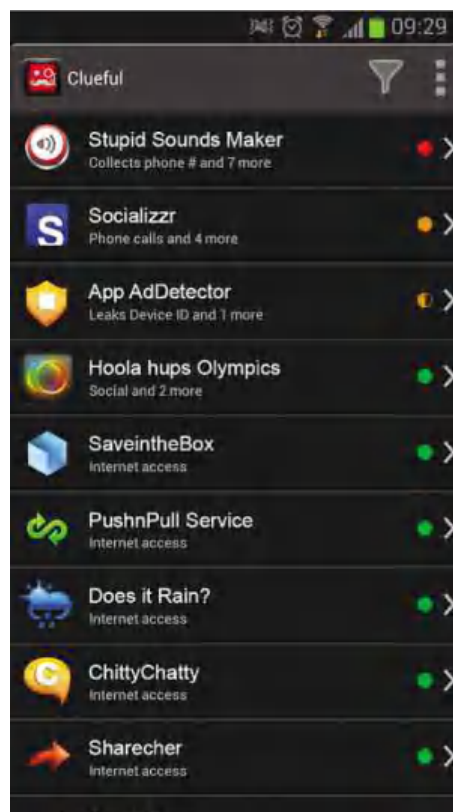
While there's a certain amount of security leakage inherent with any mobile device, the number of apps that can take total control of the most basic elements of your smart device is quite scary. It's an eye-opener, that's for sure.

Bitdefender's Clueful is an interesting and clever app, and even if you just use it to analyse your mobile device, before and after you install an app, then at least you can keep an eye on what's going on with your personal data.

Without becoming all paranoid, how many of us really know what each and every app is up to? Not many, I'd guess.



▲ Install Clueful and get your Privacy Score



▲ Then get a detailed look at those naughty apps

Logging Off

Normally in Logging Off I shy away from controversial subjects, but this week I'll be landing there firmly with both feet.

Paris. I'm 100% with Andrew Neil on this subject, and if profanity wasn't the wrong place for a family friendly publication like this, I'd be just as vocal. But on the flip-side off this story I'm getting very disturbed that each time one of these

appalling incidents occurs, the double-act bogeymen of encryption and surveillance both get invited to the party.

So far I've seen some idiot in the States blame Ed Snowden for this attack; another moron, this time a US Congressman, asking why they can't turn the bit of the internet that ISIS uses off; and numerous politicians calling for encryption to be banned.

This despite, at the time of writing, there being zero evidence that any of the communications between this terrorist cell is encrypted, and plenty to suggest that they just used plain SMS messaging.

In fact, the only concrete information we've had on the subject so far was that the cell was ultimately hunted down by call/message interception, strongly suggesting that they weren't using encryption at all.

But what really worried me personally was when Frank Gardner, a BBC journalist whom I deeply respect, turned up on the news and opened with a remark about encryption, presumably after he'd been tweaked by his security contacts.

Let's get real, people (Frank included). Encryption is maths, and you can't actually ban it, because we all use it on a regular basis almost without knowing about it. We read a message from a loved one, and we take the words and reinterpret them based on our knowledge of them. It's called 'reading between the lines'.

If I said to my wife, 'Meet me in the pub where we first talked about getting married', only we know what location we're talking about, so intercepting that message doesn't actually give you the location, does it?

Equally, when computers didn't exist, spies used virtually uncrackable encryption by using a book cypher. Each end of a communication chain sent a series of numbers, which a commonly accessible book or newspaper could be then used to decipher. Unless you had the book, and they often picked very obscure prints

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of popular publications, intercepting the message gives you nothing.

The bottom line is that if people want to communicate in secret, they will, and they don't need phones, computers or encryption to achieve that.

What all this hysteria seems to be focused on is massively expanding the security services across Europe, widening surveillance powers and making encryption something only terrorists would use. To say that this all seems massively counterproductive is putting it mildly, and it appears mostly designed to scare people into giving up what freedoms they have left to, ironically enough, 'protect them'. The people of Paris know what to do to fight these scumbags, and it's mostly about doing what you normally do in that amazing city: enjoying good food and drink with friends.

The idea that we need to entirely change our society to defend it from those that want to entirely change our society is as daft as it gets. And the sooner those in the media and politics wake up to this, the better.

Mark Pickavance

LAST WEEK'S CROSSWORD

Across: 7 Topographical, 8 Spread, 9 Rebate, 10 Inferno, 12 Union, 14 Snags, 16 Mammoth, 19 Sweden, 20 Tardis, 22 Fruit Machines.

Down: 1 AOSP, 2 Eocene, 3 Trident, 4 Spark, 5 Big Ben, 6 Fastboot, 11 Nanowire, 13 Haptics, 15 Godwin, 17 Margin, 18 Gnome, 21 IMEI.

DISCLAIMER

The views expressed by contributors are not necessarily those of the publishers. Every care is taken to ensure that the contents of the magazine are accurate but the publishers cannot accept responsibility for errors. While reasonable care is taken when accepting advertisements, the publishers cannot accept any responsibility for any resulting unsatisfactory transactions. Forgive us for once again mentioning the weather, but this week temperatures dropped to below freezing, before quickly going back above the zero mark. Although it might have only lasted one or two days, though, this was more than enough to remind us how completely unprepared we are for winter

and how we really, really wish we lived somewhere warmer. But as cold and miserable as it was, it was still nowhere near as cold and miserable as professional hate-mongerers Katie Hopkins, who made headlines this week when she managed to clear an entire lecture hall at Brunel university, simply by opening her mouth. Of course, that didn't stop her talking, and smoke and fire continued to spew forth from her cakehole, until eventually it was time for her to go, whereupon she spread her scaly wings and flew off back to her cave. As much as you might dislike Ms Hopkins, though, you have to admit, with all the hot air she expells, she'd be great to have around during the winter months.

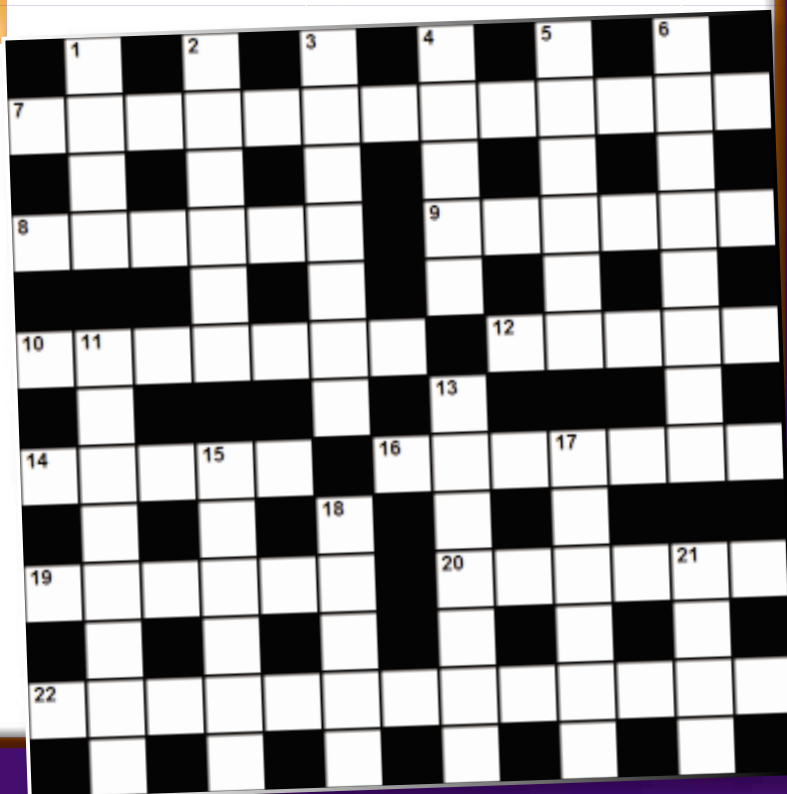
THIS WEEK'S CROSSWORD

Across

- 7 The sum total of all the messenger RNA molecules expressed from the genes of an organism. (13)
8 Not according with the facts. (6)
9 Derive by reason. (6)
10 In geology, a line on a map or diagram connecting points beneath which a particular stratum or group of strata has the same thickness. (7)
12 A coin worth one-hundredth of the value of the basic unit. (5)
14 An encode/decode tape noise reduction system that amplifies low-level, high-frequency signals during recording, then reverses this process during playback. (5)
16 In computing, a facility for inspecting the appearance of a document before it is printed. (7)
19 A segment of DNA containing adjacent genes including structural genes, an operator gene and a regulatory gene. (6)
20 A deep red variety of garnet. (6)
22 An image on an x-ray film or nuclear emulsion produced by the pattern of decay emissions from a distribution of a radioactive substance. (13)

Down

- 1 .ir TLD. (4)
2 Trick someone into committing a crime in order to secure their prosecution. (6)
3 Study of the physical and natural world using theoretical models and data from experiments or observation. (7)
4 A person who makes arrangements for other people, especially of an illicit or devious kind. (5)
5 A collective refusal to work in protest against low pay or bad work conditions. (6)
6 The result of sound reflections in a confined space being added to the original sound. (8)
11 A large zodiacal constellation between Libra and Sagittarius. (8)
13 Having a secret or hidden meaning. (7)
15 Take and use something belonging to someone else with the intention of returning it. (6)
17 A noisy, scolding or domineering woman. (6)
18 A record of the events of one year. (5)
21 The maximum instantaneous level of a signal. (4)



In Next Week's Micro Mart*

- How to create an emergency USB rescue drive
- The £4 computer than can play HD video!
- How do free apps make money?
- Plus the usual mix of news, reviews and advice



* May be subject to change

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